

LANGUAGE-PARTICULAR SYNTACTIC RULES AND CONSTRAINTS: ENGLISH LOCATIVE INVERSION AND *DO*-SUPPORT

BENJAMIN BRUENING

University of Delaware

Locative inversion in English (*under the bridge lived a troll*) is ungrammatical in all of the contexts where *do*-support applies: subject-auxiliary inversion, sentential negation, emphasis or verum focus, VP ellipsis, and VP displacement. Importantly, it is ungrammatical in these contexts whether *do*-support applies or not: it is ungrammatical with other auxiliaries, and it is also ungrammatical in nonfinite clauses of these types, where *do*-support never actually applies. This indicates that all of these contexts have something in common, and that cannot be disruption of adjacency between tense/agreement and the verb because there is no such disruption with other auxiliaries or in nonfinite contexts. These facts therefore argue against the standard last-resort theory of *do*-support, which holds that it is inserted to save a stranded tense/agreement affix, and for a theory like that of Baker 1991. In this theory, VPs have corresponding SPECIAL PURPOSE ([SP]) VPs, and *do* heads a [SP] VP. All of the contexts for *do*-support have in common the featural specification [SP]. Locative inversion involves a null expletive subject, the licensing of which is blocked by a non-[SP] context. All of this argues for a view of syntax with language-particular licensing constraints, features, and rules, within a range of variation proscribed by universal grammar.*

Keywords: locative inversion, *do*-support, last resort, language-particular rules, English

1. INTRODUCTION. In recent years, an important program shaping transformational theorizing has been the desire to do away with language- and construction-specific rules and constraints, in favor of universal principles and parameters with few (ideally, two) settings. I argue here that this program has not been successful. A detailed analysis of the interaction between English locative inversion and *do*-support shows the need for language-particular and construction-specific features, rules, and constraints.

The program to get rid of syntactic variation is taken to its extreme in the view adopted in Noam Chomsky's MINIMALIST PROGRAM (Chomsky 1993), where it is claimed that languages can only vary in observable properties of lexical items (Borer 1984). The motivation for this is the problem of language acquisition. Chomsky states that 'variation in the overt syntax ... would be ... problematic, since evidence [to guide an infant acquiring a language—*BB*] could only be quite indirect. A narrow conjecture is that there is no such variation' (Chomsky 1995:169–70). This view, however, is simply not well supported. In fact, the evidence for the variation in lexical items in Chomsky's own analyses is necessarily indirect, because it can only be observed in syntactic phenomena involving those lexical items. For instance, Chomsky posits 'strong' and 'weak' V-features on Infl ('Tense', for Chomsky) that drive overt movement of auxiliaries but covert movement of main verbs. These features can only be inferred from differences in the positioning of auxiliary and main verbs. In contrast, the evidence for an English-specific syntactic RULE moving a finite auxiliary over negation in Baker 1991 is directly observable: the finite auxiliary always precedes negation, in contrast with its nonfinite form. A priori, there is no logical impediment to the learning of language-specific rules and constraints; the issue with ANY analysis will be whether it is learnable, but there is no reason that language-specific rules and constraints would be unlearnable

* For helpful comments and discussion, I would like to thank Gabriella Hermon, Paul Postal, Carson Schütze, and the *Language* referees and editors, none of whom necessarily agree with the views presented here.

in principle. In fact, I argue, even the analyses that have been offered in the minimalist program have been unable to get away from language-particular rules, although they are typically not referred to as rules. (The ‘strong’ and ‘weak’ features referred to above are really language-particular instructions to move certain things.)

The view that I argue for here allows language-particular features, rules, and constraints, but not of an arbitrary nature. Universal grammar makes certain categories and operations available. Conditions in a particular language can only refer to those categories, and rules may only make use of those universal operations. The features of relevance here make reference to a universal distinction between main and auxiliary verbs, and the operations involved are A-bar fronting of phrases and verb movement. The exact ways that these are put to use, however, are particular to English, and have to be learned as such.

The phenomena that I investigate are locative inversion and *do*-support in English. I argue that the predominant views of both are inadequate, as is current understanding of such phenomena as subject-auxiliary inversion in WH-questions and the nature of the *that*-trace effect in extraction. To understand all of them and their interaction, it is necessary to posit various language-specific constraints and rules. Some of these constraints govern the licensing of syntactic elements like null expletives, while others rule out certain configurations and trigger a particular syntactic response (much like constraints are thought to in phonology).

English *do*-support has been an important topic of research since Chomsky 1957. The perhaps dominant view of English *do* holds that it is inserted by an operation of DO-SUPPORT, a last-resort mechanism that applies to save a stranded tense/agreement affix (Chomsky 1957; for recent discussion see Lasnik 1995, Freidin 2004). This insertion takes place in a number of contexts—with negation, in subject-auxiliary inversion, in emphatic (or *verum focus*) contexts, and when the main verb is missing because of ellipsis or displacement of the VP.

- (1) a. This theory dominates generative grammar. (simple declarative; no *do*)
 b. **Does** this theory dominate generative grammar? (subject-auxiliary inversion)
 c. This theory **does** not dominate generative grammar. (negation)
 d. This theory **DOES** (so/too) dominate generative grammar! (emphasis)
 e. That theory dominates generative grammar, and this one **does** too. (ellipsis)
 f. Dominate generative grammar though it **does**, this theory makes a number of wrong predictions. (VP displacement)

I refer to this set of contexts as SP CONTEXTS, for reasons that become clear below. In the last-resort account, the required adjacency between tense/agreement and the main verb has been disrupted in all of the SP contexts (except emphasis), preventing the tense/agreement affix from combining with the verb. This triggers the insertion of *do* into the syntactic position occupied by tense/agreement.

The last-resort account is also typically coupled with the universalist position described above, according to which there are no language-particular rules of syntax. The idea is that universal grammar makes something like *do*-support available as a last-resort operation; in any language with the characteristics of English, the operation will be triggered.

An alternative analysis that has not, to my knowledge, been subjected to serious scrutiny was proposed by Baker (1991), one of whose concerns was the availability of language-particular rules. In Baker’s analysis, corresponding to VPs in English are [SPECIAL PURPOSE] ([SP]) VPs. If the VP has an auxiliary, the [SP] VP is exactly the

DOES have a natural way of accounting for the restrictions, and because I believe these constraints are correct, this article necessarily spends some time establishing them. In addition, it is necessary to argue that independent explanations for the restrictions on locative inversion (some of which have been proposed in the literature) will not work. I therefore begin the article by analyzing locative inversion in some detail, arguing for the null-expletive analysis and discussing extraction facts. Along the way, I argue for new views of the *that*-trace effect and the asymmetry in *do*-support between subject and nonsubject WH-questions. I then turn to the SP contexts and show that locative inversion is ungrammatical in all of them. I also show that the fact that the fronted PP has been extracted is not the reason for the incompatibility. Section 4 presents my analysis of *do*-support, a modified version of Baker 1991, and how it accounts for the restriction on locative inversion. Finally, I conclude by returning to the issue of language-particular syntactic rules and constraints, as well as some consequences for current conceptions of grammar.

2. THE NULL-EXPLETIVE ANALYSIS OF LOCATIVE INVERSION. As a preliminary to the discussion of *do*-support, it is necessary to spell out my assumptions regarding locative inversion. First, a note on terminology: locative inversion has been referred to by many names, including ‘stylistic inversion’, ‘focus inversion’, and others. I refer to it as LOCATIVE INVERSION simply because that seems to be the name predominantly used in the literature, although it is important to note that it is not in any way limited to locatives or even metaphorical extensions of locatives (see Postal 2004:17–18). I use the name purely for convenience, with no analytical prejudice.

Following Lawler (1977) and Postal (1977, 2004), I argue that locative inversion involves a null expletive subject, essentially equivalent to *there*, and that it is NOT correct that the fronted PP is the subject (contra Bresnan 1994, Culicover & Levine 2001, Doggett 2004). The analysis that I am arguing for has the PP in a fronted position, and a null expletive in subject position.

- (3) [[_{PP}In this article] [_{IP}*pro* [_I is buried an argument for a new view of the *that*-trace effect]]]

I argue that the restrictions on locative inversion are best stated as restrictions on the null subject. That is, in SP contexts (specified featurally as [SP]), the null subject is not licensed, and it must be pronounced as the expletive *there*.

- (4) In this article **there** is buried an argument for a new view of the *that*-trace effect.

Independent of whether this is the correct explanation, however, it is important to establish here that locative inversion and PRESENTATIONAL-THERE sentences like that in 4 are identical in most respects. Since only locative inversion and not presentational *there* is ungrammatical in SP contexts, it is unlikely that there could be independent explanations for each such context. In particular, most analyses of locative inversion claim that the preverbal PP is extracted (to a topic or WH-position, or similar), and it is this extraction that is supposed to explain some of the restrictions that I enumerate here. I argue that the fact that the PP is extracted is not sufficient to account for the ungrammaticality of any of the SP contexts. Moreover, the PP is similarly extracted in the corresponding presentational-*there* sentences, but those ARE grammatical in all SP contexts.

Some of the strongest arguments for the null-expletive analysis are given in the following subsections (many of them come from Postal 2004; even more arguments are presented in that work). First come arguments for the null-expletive analysis, and second, arguments against the view that the fronted PP is the subject.

2.1. ARGUMENTS FOR THE NULL-EXPLETIVE ANALYSIS. In tag questions following clauses with locative inversion, the tag pronoun is *there* (Bowers 1976:236–37 cites an unpublished manuscript by Elliott and Kelly for this observation).³

- (5) a. To Gloria will fall a number of unpleasant tasks, won't there?
(Postal 2004:42, ex. 92b)
- b. At that time were built a number of warships, weren't there?
(Postal 2004:42, ex. 92d)

The tag is *there* even when *there* cannot in other contexts be used to pronominalize the PP that is fronted in locative inversion.

- (6) a. That task fell [to Gloria], but it shouldn't have fallen *there/to her.
(Postal 2004:42, ex. 92a)
- b. They built a number of warships [at that time], but they didn't deploy them *there/then.
(Postal 2004:42, ex. 92c)

Given that the tag pronoun generally has to match the surface subject in English, this fact strongly implicates the presence of a null *there* in locative inversion.

Second, most locative-inversion sentences alternate with a pronounced *there*.

- (7) a. To Gloria there will fall a number of unpleasant tasks.
b. At that time there were built a number of warships.

Furthermore, many of the conditions on these presentational-*there* sentences are exactly matched by locative-inversion sentences, as Postal (2004) documents at length (and as was recognized much earlier, in at least Green 1985 and Coopmans 1989).⁴ For example, neither is grammatical with adjectival predicates, including adjectival passives.

- (8) Postal 2004:42, exx. 95a,b
- a. That sort of heroin addict is prone to accidents on the highways.
b. *On the highways (there) is prone to accidents that sort of heroin addict.
- (9) a. At that time (there) were built an unbelievable number of warships.
b. *At that time (there) remained unbuilt an unbelievable number of warships.

Neither allows complement clauses.⁵

- (10) a. On the roof was written the warning that enemies were coming.
(Bresnan 1995:40, ex. 48a)
- b. *On the roof was written that enemies were coming.
(Bresnan 1995:40, ex. 48b)
- c. *On the roof there was written that enemies were coming.
(Postal 2004:43, ex. 103b)

³ It is important to note that tag questions interact with a definiteness restriction that I discuss shortly. There is a definiteness restriction on the postverbal NP when the expletive is pronounced as *there*, but there is not when it is unpronounced. Tag questions are then sensitive to the definiteness of the postverbal subject, and *there* becomes degraded in the tag if the postverbal subject in the clause with locative inversion is definite. In some cases, including cases that Culicover and Levine (2001) dub 'light inversion', the tag pronoun is then a pronoun that corresponds to the postverbal subject: *Into the room nude walked John, didn't he/*there?*. This definiteness restriction accounts for Levine's (1989:1025) facts and makes his dismissal of the tag-question argument unwarranted.

⁴ Some of Postal's claimed similarities seem to be incorrect, as pointed out to me by an anonymous referee. For instance, contra Postal, expletive *there* seems to be grammatical in the complement of *depend/count on* and in the copy-raising construction, while locative inversion is not. However, I do not think this argues against the null-expletive analysis of locative inversion: as we see below, the null expletive is more restricted than the overt one in a number of ways. The important point here is that locative inversion and presentational *there* pattern together in many ways; where they do not, it is always locative inversion that is more restricted (except with definites, as discussed below). This follows if the null *there* is more restricted than the overt one.

⁵ Bresnan (1995:40) credits the observation that locative inversion does not allow complement clauses to David Pesetsky.

Neither is compatible with *get*-passives, although both are compatible with passives formed with *be* (in fact passives are a major source of locative inversion).

- (11) Postal 2004:46, ex. 125a
 a. In that field were/*got executed dozens of partisans.
 b. *In that field there were/*got executed dozens of partisans.

Postal (2004:41–53) documents numerous other parallels between presentational *there* and locative inversion, all of which strongly indicate that we are dealing with the same phenomenon.

Arguing that they are NOT the same phenomenon, Bresnan (1994) points out that not all locative-inversion sentences permit *there* (see also Green 1985:125–26).

- (12) Bresnan 1994:99, ex. 76
 a. Into the room (*there) ran Mother.
 b. Out of it (*there) steps Archie Campbell.

This, however, seems to be due to the fact that the definiteness effect is observed with an overt *there*, and not without it (Aissen 1975). It is solely the definiteness of the postverbal NP that determines whether the expletive can be pronounced; the same sentence with a different NP does allow *there*.⁶

- (13) a. Into the room there ran a large, foul-smelling, out-of-breath troll.
 b. Out of it there steps a vision of loveliness.

The fact that not all inversion sentences permit *there* then does not argue against the null-expletive analysis; all the null-expletive analysis has to add is that the definiteness effect holds with the overt expletive, but not with the null one.

To summarize, in many ways except the definiteness effect, locative inversion patterns with presentational-*there* sentences. The simplest analysis takes them to be the same phenomenon, differing in the pronunciation of *there*.

2.2. ARGUMENTS AGAINST THE PP BEING THE SUBJECT. The most serious competitor to the null-expletive analysis is one that analyzes the PP as the subject (which subsequently undergoes extraction; Bresnan 1994, Culicover & Levine 2001, Doggett 2004). In numerous ways documented in this section, locative-inversion sentences act like sentences with the expletive *there* as subject. They do not act like sentences with what appears to be a PP as the subject, as in *Under the bed is a good place to hide* (see e.g. Stowell 1981, Levine 1989, Bresnan 1994). To maintain that the fronted PP is the subject, one would have to make it equivalent in every way to expletive *there*. A simpler account says that the subject is *there*; it is just null. Combined with the arguments given above, the fact that locative-inversion sentences always pattern with expletive sentences strongly argues that they ARE expletive sentences. (Once again, most of these arguments come from Postal 2004.)

First, the PP fails to determine finite verb agreement. The postverbal NP does instead, just as in sentences with the expletive *there*. This contrasts with PP subjects like *under the bed*, which do determine agreement.

⁶ The tag in sentences that bar *there* cannot be *there*, and can only be a pronoun matching the postverbal NP: *Into the room ran Mother, didn't *there/she? Out of it stepped Archie Campbell, didn't *there/he?.* I believe that this is also due to the definiteness effect, and does not require a separate treatment. *There* is banned in the tag because the definiteness restriction would be violated if it were present (the elided VP includes a definite postverbal subject), and so the only option is to match the pronoun to the postverbal subject. In general, the pronoun of a tag has to match what occurs in subject position, but I have observed some grammatical mismatches, such as *Nothing's in that room, is there?.* Using a different pronoun in this case seems quite a bit worse: *??Nothing's in that room, is it?.*

- (14) a. From that great conflict and from our incompatible viewpoints has/*have emerged a new, exciting idea for progress.
 b. There has/*have emerged a new, exciting idea for progress.
 c. Under the bed and in the fireplace are not the best places to leave your toys. (Levine 1989:1015, ex. 8)

Second, the fronted PP cannot antecede floating quantifiers, unlike true subjects.

- (15) a. Those women have all/both/each filed a complaint. (Postal 2004:23, ex. 19a)
 b. To those women was (*all/*both/*each) proposed a distinct alternative. (Postal 2004:23, ex. 19c)
 c. Under the table and under the bed would both be good places to store our ski equipment. (Postal 2004:23, ex. 20a)
 d. Under the table and under the bed was (*both) stored our ski equipment. (Postal 2004:23, ex. 20b)

In this, locative inversion patterns just like a sentence with *there*.

- (16) a. There was (*all/*both/*each) a distinct alternative proposed to those women.
 b. To those women there was (*all/*both/*each) a distinct alternative proposed.

Third, the fronted PP cannot antecede a floating emphatic reflexive.

- (17) a. That sofa may itself have been the motive.
 b. Under that sofa may (*itself) have been lying two snakes. (Postal 2004:24, ex. 26b)
 c. Under the table may (itself) have been a good place to hide a snake. (Postal 2004:24, ex. 26c)
 d. Under that sofa there may (*itself) have been lying two snakes.

Fourth, subjects, including PP subjects, can control PRO, but the fronted PP in locative inversion cannot, patterning with *there*.

- (18) a. In the bathroom is a great place to hide without PRO really being a good place to live. (Postal 2004:25, ex. 29)
 b. *Near Jane and Clarissa stood the two men after PRO dawdling the two teenagers. (cf. Near Jane and Clarissa were dawdling the two teenagers.)
 c. *To the chimp was handed a banana without PRO being handed a peach. (Postal 2004:25, ex. 28e)
 d. *There occurred three more accidents without PRO being any medical help available on the premises. (Haegeman 1994:279, ex. 46g)

Note that, for both locative-inversion and *there* sentences, the adjunct clause becomes grammatical with an overt *there*.

- (19) a. To the chimp was handed a banana without there being handed a peach.
 b. There occurred three more accidents without there being any medical help available on the premises.

Finally, the fronted PP does not act like a subject for binding: it cannot bind an anaphor elsewhere, and it can contain an anaphor, just like in a sentence with *there*.⁷

- (20) a. *To Sally and Louise were described Mike and themselves/each other. (Postal 2004:27, ex. 37d)
 b. *To Sally and Louise there were described Mike and themselves/each other.

⁷ Postal gives 21a two question marks, but I find it close to perfect.

- (21) a. ?To himself₁ is said to have been unexpectedly described the only guy₁ who thought he was handsome. (Postal 2004:25, ex. 31c)
 b. ?To himself₁ there is said to have been unexpectedly described the only guy₁ who thought he was handsome.

In fact, in all such cases, the fronted PP behaves as though it has not been fronted at all, which is surprising on the view that it is the subject.

- (22) a. *I described Mike and themselves to Sally and Louise.
 b. They unexpectedly described the only guy who thought he was handsome to himself.

In general, raising something to subject (as in passive, raising) permits it to bind anaphors that it could not otherwise, and prevents it from being an anaphor itself.

In summary, all of the data given above indicate that the fronted PP in locative inversion does not act like a subject. It acts just like the fronted PP in presentational-*there* sentences.

2.3. AGAINST THE ARGUMENTS FOR THE PP BEING THE SUBJECT. Several arguments have been advanced for the fronted PP being the subject in locative inversion. First, it can undergo raising. Second, Culicover and Levine (2001) argue that weak crossover shows that it is a subject. Third, Bresnan (1994) gave several arguments from extraction constraints for the fronted PP being a subject. None of these arguments are compelling, and reexamining the extraction facts actually leads to new understanding of the constraints at work.

RAISING. An often-repeated argument for the subject status of the fronted PP is that it appears to undergo raising.

(23) On the wall seemed to be standing two large blackbirds. (Postal 2004:18, ex. 7b)
 However, as Postal (2004:18–19) points out, raising is perfectly compatible with the null-expletive analysis of locative inversion, or indeed any theory that says that the fronted PP is extracted. In the null-expletive analysis, what raises is actually the null expletive. It can certainly be pronounced.

- (24) On the wall there seemed to be standing two large blackbirds.

So, the fact that locative inversion is compatible with raising is in no way an argument that the fronted PP is the subject.

WEAK CROSSOVER. Culicover and Levine (2001) argue that the fronted PP in locative inversion must be a subject, because it can bind a pronoun as a variable without the appearance of weak crossover. Doggett (2004) further claims that there is a contrast in this respect with presentational-*there* sentences.

- (25) a. In every dog₁'s cage hung its₁ collar. (Culicover & Levine 2001:290, ex. 16a)
 b. *In every dog₁'s cage there hung its₁ collar.

However, others have denied that there is a contrast, citing the examples in 26.

- (26) a. In every dog₁'s cage there hung its₁ overpriced and gaudy collar. (Farrell Ackerman, p.c.)
 b. Into every dog₁'s cage there peered its₁ outraged owner. (Postal 2004:348, n. 28)

To the extent that 25b is degraded, it is probably due to the definiteness effect (possessed NPs are definite). For some reason, definites in postverbal position become much better the heavier they are. Those in 26 are heavier than 25b. Moreover, indefinites with variables show no contrast whatsoever.

- (27) a. In every dog_1 's cage hangs a picture of its $_1$ owner.
 b. In every dog_1 's cage there hangs a picture of its $_1$ owner.

I conclude that there is no real weak-crossover contrast that argues against the null-expletive analysis. To the extent that there is a contrast, it is due to the definiteness effect, not to weak crossover.

THE ANTICOMPLEMENTIZER CONSTRAINT. As first noted by Bresnan (1977:186), extraction of the fronted PP produces a '*that*-trace' or ANTICOMPLEMENTIZER effect, patterning with subject extraction.

- (28) a. That bunch of gorillas, Terry claims (*that) *t* walked into the room.
 (Culicover & Levine 2001:285, ex. 4)
 b. Into the room Terry claims (*that) *t* walked a bunch of gorillas.
 (Culicover & Levine 2001:285, ex. 3a)

Moreover, just as in subject extraction, the effect is alleviated by the presence of an intervening adverb, as shown in 29 and 30 (from Culicover 1992).

- (29) a. *Robin met the man who Leslie said that *t* was the mayor of the city.
 b. Robin met the man who Leslie said that for all intents and purposes *t* was the mayor of the city.
 (30) a. *On which table were you wondering whether *t* had been put the books that you had bought?
 b. On which table were you wondering whether under certain circumstances *t* might have been put the books that you had bought?

This pattern does seem to show, if the anticomplementizer constraint is a constraint on subject extraction, that the PP is the subject.

Postal (2004) points out data, however, that strongly suggest that the anticomplementizer constraint is NOT about subject extraction specifically. The data involve *as*-parentheticals (and comparatives, which I do not discuss here).

With adjectival and passive predicates, *as*-parentheticals can appear without any obvious subject.

- (31) Postal 2004:32, ex. 51
 a. Lasers can, as is obvious, cut through stone walls.
 b. Lasers can, as was proved by Mike, cut through stone walls.

Postal argues that, in these parentheticals, *as* corresponds to an extraposed *that* clause, and a null expletive corresponding to *it* is the subject. That is, these parentheticals have this form underlyingly.

- (32) a. It is obvious that lasers can cut through stone walls.
 b. It was proved by Mike that lasers can cut through stone walls.

As corresponds to the embedded clause, and undergoes extraction; just when it does, the *it* can be unpronounced.

The evidence for this, and against the alternative, where the *as* corresponds to an extracted sentential subject, comes from a class of verbs that permit extraposed clauses but do not permit sentential subjects (when passivized).

- (33) Postal 2004:33, ex. 56
 a. Everyone intelligent feels/holds/says/supposes/thinks that gold is rare.
 b. *That gold is rare is felt/held/said/supposed/thought by everyone intelligent.
 c. It is felt/held/said/supposed/thought by everyone intelligent that gold is rare.

These verbs permit *as*-parentheticals with missing subjects, indicating that *as* in this case does not correspond to a sentential subject.

- (34) Gold is not, as is deeply felt/widely held/sometimes said/usually supposed/
generally thought, extremely rare. (Postal 2004:33, ex. 57)

Instead, *as* must correspond with an extraposed clause, as it demonstrably can in a sentence like that in 35.

- (35) Lasers cannot, as it had previously seemed to everyone, cut through stone
walls. (Postal 2004:32, ex. 53b)

And the missing subject in 34 must be a null expletive.

Furthermore, there is a class of verbs that do not permit their subjects to be extraposed, and these do not permit *as*-parentheticals.

- (36) Postal 2004:34, ex. 60
a. *It is captured/expressed/reflected by this theory that languages have verbs.
b. That languages have verbs is captured/expressed/reflected by this theory.
(37) *Languages do (not) have, as is captured/expressed/reflected by this theory,
the sort of verb in question. (Postal 2004:34, ex. 61b)

What this shows is that *as* in these parentheticals may ONLY correspond to an extraposed clause, and may never correspond to a sentential subject. (In fact, Postal argues that the extractee in any sort of parenthetical can never be a subject of any type.)

Now, given that the extracted *as* is not the subject, it is extremely curious given most accounts of the anticomplementizer constraint that it arises in *as*-parentheticals with missing subjects.

- (38) Postal 2004:36, ex. 69
a. Ted was cheated, as I assumed (*that) was obvious.
b. Ted was cheated, as I thought (*that) had been proved by Michelle.

This holds even with the class of verbs that do not permit sentential subjects.

- (39) Diamonds are not actually rare, as I thought (*that) was usually supposed.

Note furthermore that adverbs alleviate the effect.

- (40) Diamonds are not actually rare, as I had thought that, for all intents and purposes, was usually supposed.

The importance of this observation for the proper characterization of the anticomplementizer constraint cannot be overemphasized. The argument from the anticomplementizer constraint for the subjecthood of the fronted PP in locative inversion relies on the assumption that the anticomplementizer constraint is a constraint on extracted SUBJECTS. But *as*-parentheticals show that this is not so. The extracted *as* is NOT a subject.

Departing from Postal, the actual descriptive generalization seems to be 41.

- (41) There must be overt material between an overt complementizer and a subject position with no phonetic exponence.

In standard cases of the anticomplementizer constraint, the subject position has no phonetic exponence because it has been extracted; since it has no phonetic exponence, the complementizer cannot immediately precede it. An intervening adverb remedies the situation. In *as*-parentheticals, the subject position has no phonetic exponence because it is occupied by a null expletive, and again something overt, like an adverb, must occur between it and the complementizer. In locative inversion, the subject position is also occupied by a null expletive, but the fronted PP intervenes between the complementizer and the subject position. The complementizer will only be immediately followed by the

null subject if the fronted PP gets out of the way; hence it appears that the anticomplementizer effect is triggered just when the PP is extracted.

If all of this is correct, the anticomplementizer constraint does NOT indicate that the fronted PP is the subject. In fact the anticomplementizer constraint, which has loomed so large in generative syntax, is not about subject extraction at all (or is so only indirectly).

THE COMPLEMENTIZER EFFECT. As is well known, the anticomplementizer constraint reverses in relative clauses (including clefts, which permit extraction of PPs). Following Postal (2004), I call this the COMPLEMENTIZER EFFECT (it was also Postal who observed that the effect holds with locative inversion). The generalization seems to be that the relative clause cannot lack a relative pronoun or *that* just when the subject is extracted. The fronted PP in locative inversion patterns as a subject, while the fronted PP in presentational *there* does not.

(42) Postal 2004:21, ex. 15

- a. It was those towns (that) he studied.
- b. It was those towns *(that) were studied.
- c. It was in those towns (that) she learned the best techniques for drying fruit.
- d. It was in those towns *(that) were learned the best techniques for drying fruit.

- (43) a. It was from that great conflict *(that) arose a new humanity and sense of greater purpose.
- b. It was from that great conflict (that) there arose a new humanity and sense of greater purpose.

Something else seems to be going on here, however. Locative-inversion sentences still require an overt *that* even when something other than the fronted PP has been extracted.

- (44) a. It was last year *(that) from that great conflict arose a new humanity.
- b. It was by sword *(that) for that perverted cause were slain thousands of innocents.
- c. It was only from the elders *(that) in those towns could be learned an impressive array of fruit-drying techniques.

Here the fronted PP is not the one that has been extracted, but *that* is still required. Contrast non-locative-inversion counterparts of these sentences, where *that* can be omitted.

- (45) a. It was last year (that) a new humanity arose from that great conflict.
- b. It was by sword (that) thousands of innocents were slain for that perverted cause.
- c. It was only from the elders (that) an impressive array of fruit-drying techniques could be learned in those towns.

I see two possibilities: either the complementizer effect is about nonpronounced subjects again, and not specifically about extraction (that is, *that* is required just when the subject position has no phonetic exponence); or, there is some other constraint that requires *that* in locative inversion. The fact that the sentences in 44 are still bad with an overt *there* seems to favor the latter.

- (46) a. It was last year *(that) from that great conflict there arose a new humanity.
- b. It was by sword *(that) for that perverted cause there were slain thousands of innocents.

- c. It was only from the elders *(that) in those towns there could be learned an impressive array of fruit-drying techniques.

The exact nature of the restriction is not important here; what is important is that *that* must be pronounced in relative clauses involving locative inversion, whether or not it is the PP that is extracted.⁸ The complementizer effect, therefore, does NOT indicate that the fronted PP is the subject.

THE PARALLELISM CONSTRAINT. Bresnan (1994) presents another extraction constraint that she takes to argue that the fronted PP in locative inversion is the subject. This is the PARALLELISM CONSTRAINT on the across-the-board exception to the coordinate structure constraint (Williams 1978, Gazdar 1981, Falk 1983, Woolford 1987). This constraint requires that, in across-the-board extraction from a coordinate structure, a highest subject can only match other highest subjects in the other conjuncts. Thus 47c is ungrammatical, because the extractee is the highest subject of the second conjunct, but is the object of the first conjunct.

(47) Bresnan 1994:98, exx. 71–72

- a. She's someone that ___ loves cooking and ___ hates jogging.
- b. She's someone that cooking amuses ___ and jogging bores ___.
- c. *She's someone that cooking amuses ___ and ___ hates jogging.
- d. She's someone that cooking amuses ___ and I expect ___ will hate jogging.

The sentence in 47d is grammatical because the extracted subject in the second conjunct is embedded, and is not the HIGHEST subject.

Bresnan shows that extracting the fronted PP in locative inversion is subject to the parallelism constraint.

(48) Bresnan 1994:98, exx. 73–74

- a. That's the old graveyard, in which ___ is buried a pirate and ___ is likely to be buried a treasure.
- b. That's the old graveyard, in which workers are digging ___ and a treasure is likely to be buried ___.
- c. ??That's the old graveyard, in which workers are digging ___ and ___ is likely to be buried a treasure.
- d. That's the old graveyard, in which workers are digging ___ and they say ___ is buried a treasure.

I have confirmed that speakers judge the offending sentence to be much improved if *there* is pronounced, apparently indicating a structural difference between locative inversion and presentational-*there* sentences.

(49) That's the old graveyard, in which workers are digging ___ and ___ there is likely to be buried a treasure.

But note that the gap in the second conjunct could be postverbal (*there is likely to be buried a treasure in that old graveyard*).

⁸ It might be the case that *that* must be pronounced if something has been fronted to the position that I am claiming the fronted PP occupies. See the examples in (i).

- (i) a. It was in a bar *(that) on Tuesday I met a girl.
- b. It was in a bar *(that) without thinking I set down my cell phone.

(These sentences are grammatical, irrelevantly, when what is clefted is both constituents: *It was in a bar on Tuesday (that) I met a girl.*)

The problem with the parallelism-constraint argument is that many accounts of the constraint claim that it is simply about the height of coordination, and not necessarily about subjects (Gazdar 1981, Falk 1983, Woolford 1987). In this account, when the highest subject is extracted, coordination is actually BELOW the extracted-from subject position.

(50) She's someone that [_{IP} ____ [[loves cooking] and [hates jogging]]].

The reason that 47c is ungrammatical, in this account, is either that unlike constituents have been coordinated (Gazdar 1981, Falk 1983), or that the extraction of the subject from one conjunct would violate movement constraints (Woolford 1987).

(51) *She's someone that [_{IP} [_{IP} cooking amuses ____] and [_{IP} ____ hates jogging]].

This sentence could only involve coordinated IPs, and the extraction of the subject would then have to cross two IPs, which is ruled out for subjects (Woolford formalizes this in the BARRIERS theory of Chomsky 1986).

Regardless of the exact account of 47c, it does seem to be correct that the height of coordination is involved, and not specifically subject extraction. For one thing, an intervening adverbial phrase appears to ameliorate the effect.

(52) a. She's someone that cooking amuses ____ and, according to her personal trainer, ____ hates pilates.

b. That's the old graveyard, in which workers are digging ____ and, according to this old map, ____ is likely to be buried a treasure.

If the constraint were specifically a constraint on SUBJECTS, the presence of an adverb should have no effect. If, however, it is about height of coordination, the adverb is expected to have an effect. I believe that the constraint is actually about the HIGHEST CONSTITUENT.

(53) THE PARALLELISM CONSTRAINT: In across-the-board extraction, if one gap is the highest constituent within its conjunct, all other gaps must be as well.

More evidence that this is correct comes from the fact that the parallelism constraint's effects disappear if negative inversion takes place in the conjuncts.

(54) a. She's the type of person that at no time should you turn your back on ____ and in no situation should you take your eyes off of ____.

b. She's the type of person that at no time will ____ turn her back on you and in no situation will ____ take her eyes off of you.

c. She's the type of person that at no time will ____ turn her back on you and in no situation should you take your eyes off of ____.

d. ?She's the type of person that at no time should you turn your back on ____ and in no situation will ____ entirely trust you.

The fact that 54c–d are not ungrammatical indicates that the constraint does not refer to SUBJECTS, but rather to the fact that the extracted constituent is the HIGHEST in its conjunct. Then the fact that the parallelism constraint operates on the fronted PP in locative inversion is not mysterious at all, even if it is not the subject: the fronted PP is the highest constituent.

Once again, then, we see that an extraction constraint that is appealed to as evidence for the subject status of the fronted PP is really not about subjects at all. The fact that extracting the fronted PP patterns with extracting a subject therefore does not show that the fronted PP is a subject.

LACK OF *do*-SUPPORT WHEN EXTRACTED. The last of Bresnan's 1994 arguments for the PP being the subject is that, when it is questioned, it does not trigger *do*-support.

- (55) a. On which wall hung a portrait of the artist? (Bresnan 1994:102, ex. 85a)
 b. *On which wall did hang a portrait of the artist? (Bresnan 1994:102, ex. 85b)

In this it acts just like a subject, and unlike presentational *there*.

- (56) a. Which portrait of the artist hung on the wall? (Bresnan 1994:102, ex. 86a)
 b. *Which portrait of the artist did hang on the wall? (Bresnan 1994:102, ex. 86b)
 (57) a. *On which wall there hung a portrait of the artist? (Bresnan 1994:102, ex. 87a)
 b. On which wall did there hang a portrait of the artist?
 (Bresnan 1994:102, ex. 87b)

Blunting the force of this argument, however, Postal (2004) noted that, unlike other extracted subjects, the fronted PP does not allow an emphatic *do* either.

- (58) a. Which wall bears the weight of the roof?
 b. Which wall DOES bear the weight of the roof?
 (59) a. *On which wall (must we conclude) DID hang a portrait of the artist?
 (Postal 2004:41, ex. 87b)
 b. On which wall HUNG a portrait of the artist? (Postal 2004:41, ex. 87a)

To this I add the observation that locative inversion is simply incompatible with emphatic *do*, in nonquestion contexts as well as questions.

- (60) a. On the wall hung a portrait of the artist.
 b. *On the wall DID hang a portrait of the artist.
 c. On the wall there DID hang a portrait of the artist.

I discuss this more fully below, as part of showing that locative inversion is incompatible with SP contexts. For now, though, I need to explain why extraction of the PP would be allowed without *do*-support in a locative-inversion sentence, if the PP is in the same structural position that it is in in a presentational-*there* sentence.

Once again, this argument only indicates that the PP is the subject if the lack of *do*-support under questioning is specifically about subjects. But it is at least as plausible that the relevant generalization about English does not refer to subjects at all, along the lines of the constraint in 61.⁹

- (61) THE WH-INFL CONSTRAINT: In a matrix question, there must be no overt NP between a WH-phrase moved to Spec-CP and the verb that bears tense/agreement.

In nonsubject questions, subject-auxiliary inversion ensures that nothing intervenes between the WH-phrase and the tense/agreement-bearing auxiliary. But in subject questions, no movement of anything need take place (although it might; it does not matter here whether the WH-phrase moves or not); the subject will not be separated from the tense/agreement-bearing verb by any other NP, whether the verb is an auxiliary or a main verb.

Turning now to locative inversion and presentational-*there* sentences, in locative inversion, the subject is null. If the PP is questioned, there will be no overt NP between the PP and the tense/agreement-bearing verb (there will be a null one, irrelevantly). If the subject is overt, as *there*, the constraint will be violated without subject-auxiliary inversion taking place.

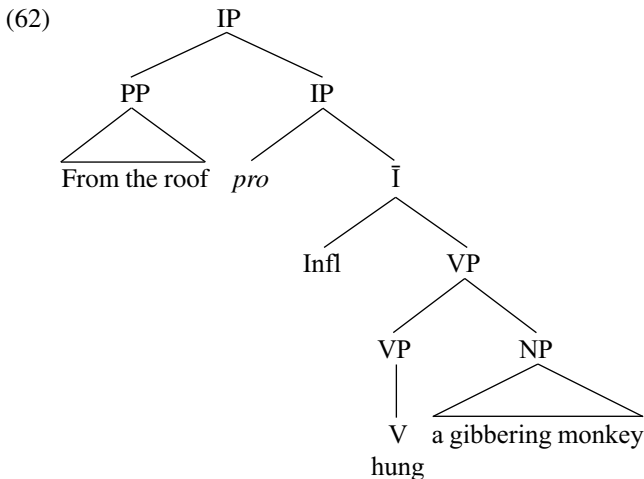
⁹I do not say TENSED verb, so that nonfinite matrix questions like *What to do?* might also fall under the generalization. In addition, a more accurate characterization would not limit illicit interveners to NPs; other types of argumental phrases, like PPs, are probably banned as well. Using the term 'argument' is problematic, however, because expletives also count. I therefore state the constraint as 61, but recognize that it is not sufficient.

Of course, I must give an analysis of subject-auxiliary inversion having this result, but I postpone that to §4. For now, what is important is that it is possible to look at the lack of *do*-support in subject questions in a different way, such that they are only one in a larger set of environments where *do*-support is not triggered. In fact, one could argue that rethinking the generalization is one of the benefits of adopting the null-subject analysis of locative inversion. All the arguments above indicate that the PP in locative inversion is not the subject; therefore we are forced to take another look at what the right generalization is regarding the few facts inconsistent with this conclusion. Above I argued, with independent evidence, that the anticomplementizer constraint and the parallelism constraint are not about subjects at all. There, the independent evidence converged on a new generalization with the view that we are forced to from the analysis of locative inversion. I take this to be an important advance, since knowing what the right generalization is is a precondition for formulating a theoretical analysis. I contend that it is the same here, although in this case there is no independent evidence.

I conclude that the lack of *do*-support when the PP is questioned does not argue strongly for the PP being the subject. All of the other extraction constraints discussed above turned out not to be about subjects. It would not be surprising, therefore, if *do*-support in matrix questions were also not directly about subjects. It is at least just as plausible that the right generalization is something like that in 61.

2.4. SUMMARY OF THE EVIDENCE. Modulo the definiteness effect, locative-inversion sentences pattern with presentational-*there* sentences in numerous ways. The evidence given above strongly supports the null-expletive analysis. None of the arguments for the PP being the subject go through; when examined more carefully, they actually point to other conclusions.

2.5. ANALYSIS OF LOCATIVE INVERSION. A minimal analysis of locative inversion is necessary for evaluating possible accounts of its incompatibility with SP contexts. I hypothesize that the subject position, Spec-IP, is occupied by a null expletive (designated *pro* here, a silent version of *there*). The fronted PP is in an extracted position, which I treat as adjoined to IP (see the examples in 72 below, which show that the fronted PP follows a complementizer). The postverbal subject I suppose to be adjoined to VP.



While there is little direct evidence for the position of the postverbal subject in locative inversion, in presentational-*there* sentences it acts like it is part of the VP for VP ellipsis and VP right node raising (see below).

- (63) a. He said that across the room there will appear a large purple dragon, and across the room there certainly will.
 b. For this cause there were, but for that cause there were not, slaughtered thousands of innocents.

Since I am taking locative inversion and presentational *there* to be identical in most respects, I take this evidence to indicate that the postverbal subject is inside VP in locative inversion, too. (It is not important here whether this is adjunction to VP, or a rightward specifier as in Doggett 2004.)

Finally, for the expletive to be unpronounced, it is crucial that the PP front. *There* cannot be null in the absence of this fronting (examples due to Gabriella Hermon).

- (64) a. Around the bend (there) came a train.
 b. *Came a train around the bend.
 c. There came a train around the bend.

I do not try to explain this (note that the null expletive in *as*-parentheticals, discussed above, also seems to be related to extraction), but simply stipulate it as a licensing condition on the null expletive.

- (65) LICENSING CONDITION ON NULL *there* (to be revised): Expletive *there* in Spec-IP can only be null when a PP has adjoined to IP.

This licensing condition, which I revise below to take account of the SP restriction, is specific to English.

3. LOCATIVE INVERSION IS UNGRAMMATICAL IN SP CONTEXTS. This section establishes the main point of this article: that locative inversion is ungrammatical in all of the SP contexts, namely, subject-auxiliary inversion, negation, emphasis, VP ellipsis, and VP displacement. Importantly, it is ungrammatical in these contexts whether *do*-support actually takes place or not. This indicates that no account in terms of adjacency or verb movement can be formulated: even when the auxiliary is a modal, *have*, or *be*—all of which do undergo verb movement and have no issue with adjacency—locative inversion is still ungrammatical. Just as importantly, locative inversion also contrasts with presentational *there*, which is grammatical in all SP contexts. Since I argued that locative inversion and presentational *there* are identical in all relevant respects except for the pronunciation of the expletive, it will also not be possible to formulate a semantic or pragmatic account of the incompatibility.

3.1. SUBJECT-AUXILIARY INVERSION. It is well known that locative inversion is ungrammatical with subject-auxiliary inversion.

- (66) a. *Was among the ruins found a skeleton? (Bresnan 1994:108, ex. 99b)
 b. *Can on these trails be found many different kinds of mushrooms?
 (based on Bresnan 1994)
 c. *Did out of this dungeon step a man hungry for revenge?

Bresnan (1994) claims that the failure of subject-auxiliary inversion is due to the fact that the fronted PP is extracted. In her analysis, the PP is the subject, but it is then obligatorily extracted. Since it is not in the subject position, it cannot invert with the auxiliary. The analysis that I have adopted here, the null-expletive analysis, also claims that the fronted PP is extracted (but the subject position is filled with a silent *there*), so it would seem to be possible to adopt the same explanation.

The fact that the PP is extracted, however, is not enough to explain the restriction against subject-auxiliary inversion. In both Bresnan's PP-subject analysis and the null-expletive analysis, the fronted PP surfaces in the same position in 67a as it does in 67b.

- (67) a. For that perverted cause were slaughtered thousands of innocents.
 b. For that perverted cause thousands of innocents were slaughtered.

But now note that subject-auxiliary inversion is possible in 67b.

- (68) For that perverted cause were thousands of innocents slaughtered?

So, if subject-auxiliary inversion WERE to apply to 67a, in Bresnan's analysis the auxiliary would be inverting with a vacated subject position, and in the null-expletive analysis that I am advocating here, it would be inverting with a null expletive. In the absence of any knowledge of what would happen in such a case, we would expect the inversion to be string-vacuous, so that 67a with question intonation would be a simple yes-no question.

- (69) For that perverted cause were slaughtered thousands of innocents?

It is not, however; it has the same kind of bias that noninverted questions formed purely with rising intonation generally have, just like 67b said with rising intonation (see Gunlogson 2001). It is certainly not a neutral request for information like 68 is.

One might also guess that if there is no auxiliary, inverting with a vacated subject position or a null subject would result in *do*-support. That, however, is totally ungrammatical.

- (70) a. Out of that cave flew a dragon.
 b. *Out of that cave did fly a dragon?

So, saying the PP is extracted DOES explain why subject-auxiliary inversion does not invert the PP and the auxiliary, but it does not explain the general failure of subject-auxiliary inversion in locative-inversion sentences. Something additional has to be added: either a restriction against inverting with a vacated subject position (Bresnan), or a restriction against the expletive being null when inversion takes place (the null-expletive analysis).

Note that the expletive can be spelled out in subject-auxiliary inversion.

- (71) a. For that perverted cause were there slaughtered thousands of innocents?
 b. Out of that cave did there fly a dragon?

So, again, extraction of the PP is not in general incompatible with subject-auxiliary inversion.

It is also not the case that locative inversion is incompatible with yes-no questions. It can occur in embedded yes-no questions, as in the naturally occurring examples in 72.

- (72) a. Having done this, the next and natural step was to see **whether** out of that experience and from that knowledge could be formulated a general municipal program elastic enough to be applied in the different municipalities in the different States ...

(1898; <http://books.google.com/books?id=6-IMAAAAMAAJ>)

- b. The question is **whether** from that election will emerge that small cast of characters with the vision, passion, skill and determination to put a new reform agenda in place. (2003; <http://www.irpp.org/po/archive/nov03/coutts.pdf>)

So it is specifically subject-auxiliary inversion that is ungrammatical with locative inversion; there is no incompatibility between locative inversion and yes-no questions.

Note also that it is not just *do*-support that is ungrammatical; it is subject-auxiliary inversion in general. In 69 the auxiliary is *be*, but inversion (to yield a simple yes-no question) is still ungrammatical. There is therefore no way to formulate an account in terms of adjacency: the *be* auxiliary is usually supposed to move to the position of tense/agreement. There is no issue of tense/agreement being separated from the verb.

Furthermore, since all auxiliaries are grammatical with locative inversion in simple declaratives, it is not the case that only tense/agreement combining with the main verb licenses locative inversion.

Turning to other instances of subject-auxiliary inversion, negative inversion is also ungrammatical with locative inversion. If the fronted PP is a negative one, the postverbal position of the subject is only grammatical without auxiliary fronting. In locative inversion, the only way that auxiliary fronting would be visible would be when there is no auxiliary, and *do* appears. This is totally ungrammatical.

- (73) a. On no wall did a portrait of Chomsky hang.
(negative inversion, no locative inversion)
b. On no wall hung a portrait of Chomsky.
(locative inversion, no negative inversion)
c. *On no wall did hang a portrait of Chomsky. (both)
d. On no wall did there hang a portrait of Chomsky. (presentational *there*)
- (74) a. Into no room did John walk. (negative inversion, no locative inversion)
b. Into no room walked John. (locative inversion, no negative inversion)
c. *Into no room did walk John. (both)
d. Into no room did there walk a large, hairy troll with a club.
(presentational *there*)

Negative inversion is grammatical with presentational *there* and the postverbal positioning of the subject. (Example 74d switches postverbal NPs because of the definiteness restriction on presentational *there*; see above.)

Subject-auxiliary inversion of any type, then, is ungrammatical with locative inversion, but is grammatical with presentational *there*. This holds whether the auxiliary is inserted *do*, or something else. Saying that the PP is extracted is not sufficient to explain the restriction, and it is difficult to see how any account in terms of adjacency or verb movement could be formulated.

3.2. SENTENTIAL NEGATION. It has been known since at least Aissen 1975 that sentential negation is incompatible with locative inversion, but constituent negation is not.

- (75) a. *On this wall will not hang a picture of U. S. Grant.
b. On the wall hangs not a picture of U. S. Grant but one of Jefferson Davis.
(Aissen 1975:9, ex. 49)

Aissen (and Bresnan 1994) suggested that negation was ungrammatical because of the discourse use of locative inversion as presentational focus. This could not be correct, however. Presentational *there* involves the same presentational focus, but it is compatible with sentential negation.

- (76) a. On this wall there most certainly has not hung a picture of Chomsky.
b. *On this wall most certainly has not hung a picture of Chomsky.

At least some speakers, such as this author, also accept negation with *never*, in contrast with *not*. Aissen (1975:9, ex. 47a) did not, and some speakers agree with her, rejecting 77a. Others, however, accept 77a.¹⁰

- (77) a. %On this wall has never hung/will never hang a picture of Chomsky.
(accepted by some speakers)
b. *On this wall hasn't ever hung/will not ever hang a picture of Chomsky.
c. On this wall there hasn't ever hung/will not ever hang a picture of Chomsky.

¹⁰ Some speakers do not find 77b completely ungrammatical. They all agree, however, that there is a contrast with 77c, which is better.

The following example, provided by Farrell Ackerman, also seems perfect to most speakers.

- (78) Needless to say, from such an observation will never emerge any useful understanding of grammar.

Locative inversion is not, therefore, incompatible semantically or pragmatically with sentential negation, since *never* includes sentential negation in its semantics. The incompatibility must be syntactic.

Locative inversion is, of course, ungrammatical with negation plus *do*-support.

- (79) a. *In the garden doesn't stand a fountain. (Levine 1989:1015, ex. 6)
 b. In the garden there doesn't stand a fountain.
 (80) a. *(We quivered in terror, waiting; but) through the door didn't ever step a purple dragon.
 b. (We quivered in terror, waiting; but) through the door there didn't ever step a purple dragon.

But it is not *do*-support that is ungrammatical with locative inversion, it is sentential negation, as the examples above with other auxiliaries make clear. Given that other auxiliaries are usually assumed to move over negation, it is difficult to see how any account in terms of adjacency could explain the incompatibility of locative inversion with sentential negation.

So far, then, we have seen that locative inversion is ungrammatical with two contexts for *do*-support, subject-auxiliary inversion and sentential negation. With sentential negation we have the ability to see something else of interest: locative inversion is degraded with sentential negation in any clause that is involved, even when it involves more than one clause. Locative inversion is compatible with raising, for instance ex. 81; but neither the higher clause nor the lower clause can be negated.

- (81) a. On this wall seems to have been some paint.
 b. On this wall seems to have hung a picture of Chomsky.
 (82) a. *On this wall doesn't seem to have been any paint.
 b. *On this wall doesn't seem to have hung a picture of Chomsky.
 c. On this wall there doesn't seem to have been any paint.
 d. On this wall there doesn't seem to have hung a picture of Chomsky.
 (83) a. ??On this wall seems not to have been any paint.
 b. ??On this wall seems not to have hung a picture of Chomsky.
 c. On this wall there seems not to have been any paint.
 d. On this wall there seems not to have hung a picture of Chomsky.

In contrast, presentational *there* is acceptable with negation in either clause.

The important point here is that the lower clause of a raising sentence is NOT an environment where *do*-support ever actually takes place. This means that locative inversion is incompatible with the environments that trigger *do*-support, not with *do*-support itself. That is, locative inversion is incompatible with sentential negation, not with *do*-support directly. Sentential negation has some property that triggers *do*-support, but only in finite contexts. It must be this triggering property that is incompatible with locative inversion. We saw this also with auxiliaries other than *do*, which are also ungrammatical with locative inversion in subject-auxiliary inversion and in sentential negation. The lower clause of a raising sentence is even more striking, because there is no issue of separating tense/agreement from the verb. Such clauses are nonfinite, and do not have (visible) tense or agreement.

- (91) a. On this wall there has too hung a picture of Chomsky!
 b. *On this wall has too hung a picture of Chomsky!
- (92) a. For that perverted cause there were too slaughtered thousands of innocents!
 b. *For that perverted cause were too slaughtered thousands of innocents!

Once again, then, locative inversion is simply ungrammatical with a context for *do*-support, even with an auxiliary other than *do*. Since presentational *there* is grammatical, it is unlikely that there could be a semantic or pragmatic account of the restriction.

3.4. VP ELLIPSIS. Most movement processes, like WH-movement (93a), topicalization (93b), and passivization (93c), can escape VP ellipsis.

- (93) a. I know who Briggs is watching, but I don't know who Murphy is.
 b. Apples, I like, but oranges, I don't.
 c. A: Someone should fix the car.
 B: It will be.

Locative inversion cannot, however. What has not been observed before, to the best of my knowledge, is that, if the antecedent for an elided VP includes locative inversion, the ellipsis obligatorily includes the fronted element; and VP ellipsis is simply impossible in a clause that includes locative inversion.

- (94) a. Into the room stepped a purple dragon. Then I did.
 b. Into the room stepped a purple dragon. *Out of it did too.
- (95) a. *From the back of the hall will appear a large purple dragon, and from backstage (probably) will too.
 b. From the back of the hall (there) will appear a large purple dragon, and from backstage there (probably) will too.

The problem is not that the subject is postverbal; see presentational *there* in 95b.

The fact that the PP is extracted is obviously not going to provide us with any explanation for the failure of VP ellipsis either, since extraction is perfectly compatible with VP ellipsis. Moreover, the exact same extraction in a presentational-*there* sentence is grammatical in 95b. The incompatibility between locative inversion and VP ellipsis is completely mysterious on all accounts of either phenomenon that I am aware of.

If the null-expletive analysis is correct, as I argue here, the problem must be specifically the null character of the expletive, given 95b. Something must prevent the expletive from being null when VP ellipsis takes place. I argue that it is the same thing that prevents it from being null in subject-auxiliary inversion, sentential negation, and emphatic statements: SP contexts do not license the null expletive. Clauses with VP ellipsis are SP contexts, as evidenced by the fact that *do*-support occurs if there is no other auxiliary, and hence they do not license the null expletive.

(i) That's false. From such an apparently minor observation DID, in fact, emerge a whole new conception of development.

It seems to be the adverbial *in fact* that makes this sentence acceptable; leaving it out is ungrammatical. At the moment I have no idea why an adverbial expression would improve emphatic *do*. It also helps with sentential negation, in my judgment.

(ii) From Aristotle's ideas have not, in fact, emerged any useful real-world applications.

Adverbial expressions do not improve VP ellipsis or subject-auxiliary inversion, however. I leave this interesting phenomenon aside, although it is probably relevant to the ultimate understanding of the anti-SP restriction on locative inversion (note that it is somewhat similar to the saving effect of adverbs on the anticomplementizer constraint, discussed above).

In addition, we once again see that the nonlicensing context is also ungrammatical with locative inversion in the lower nonfinite clause of a raising construction.

- (96) a. Out of that room seems to have stepped a large purple dragon.
 b. *Out of this one seems to (have), too.
 c. Out of this one there seems to have, too.
- (97) a. For this perverted cause are likely to be slaughtered thousands of innocents.
 b. *For that one are likely to be, too.
 c. For that one there are likely to be, too.

Since VP ellipsis is a context for *do*-support, this is covered by the generalization in 86. But again, the ungrammaticality holds whether *do*-support actually takes place or not: with other auxiliaries, or in a nonfinite clause where *do*-support NEVER takes place. Again, the last-resort analysis of *do*-support has no way of referring to all of these contexts as a class. The [SP] analysis of Baker 1991, in contrast, posits an [SP] feature that characterizes all of these contexts, whether *do*-support takes place in them or not.

3.5. PSEUDOGAPPING VERSUS GAPPING. We might also expect to find a difference between pseudogapping and gapping in their ability to cooccur with locative inversion, given recent analyses of these two phenomena. Several recent papers argue that pseudogapping is VP ellipsis plus some kind of movement out of VP (Jayaseelan 1990, Lasnik 1999); crucially here, it is an environment for *do*-support. We therefore expect that it should be ungrammatical with locative inversion, and it is, as was observed by Lin (2000).

- (98) a. *To Hercules will fall the task of cleaning the Aegean Stables, and to Jason will the task of retrieving the Golden Fleece.
 b. To Hercules (there) will fall the task of cleaning the Aegean Stables, and to Jason there will the task of retrieving the Golden Fleece.

Pseudogapping is perfectly grammatical with presentational *there*, just like VP ellipsis is.

In contrast, gapping does not require *do*-support, and it has been argued to involve not VP ellipsis, but rather across-the-board verb movement to Infl (Johnson 2000). Locative inversion is therefore correctly predicted to be grammatical with gapping.

- (99) To Hercules fell the task of cleaning the Aegean Stables, and to Jason, of retrieving the Golden Fleece.

Locative inversion, then, acts exactly as expected given the constraint against it occurring in SP contexts.

3.6. VP DISPLACEMENT. The last environment for *do*-support is displacement of VP, typically exemplified by VP fronting. VP fronting, however, is unsuitable for even testing with locative inversion. It seems to be incompatible with postverbal subjects generally.

- (100) a. *I said there would be a man in the garden, and be a man in the garden there certainly will.
 b. *Be a man in the garden though there might, I still won't stay inside.

It is therefore impossible to try to test locative inversion as opposed to presentational *there*, because both are simply ungrammatical.

- (101) To this argument (there) can be added numerous others,
 a. * ... and added numerous others, to this argument there certainly can be.
 b. * ... and added numerous others, to this argument certainly can be.

It is possible to find, however, a contrast in VP right node raising (see Postal 1998 and Sabbagh 2007 for extensive arguments that right node raising is movement and not ellipsis). Consider sentences like the following, which require *do*-support.

- (102) a. VP ellipsis does, but VP fronting does not, provide suitable data for testing my hypothesis.
 b. *VP ellipsis probably, and VP fronting certainly, supports my hypothesis.
 c. VP ellipsis PROBABLY does, and VP fronting CERTAINLY does, support my hypothesis.

Here, the VP has undergone right node raising, and we can see that *do*-support is triggered, even in clauses that do not include negation (the third example might be slightly degraded because of the general dispreference for noncontrasting material outside of the right-node-raised constituent, but it is certainly better than the second example).

Right node raising of VPs seems to be grammatical with postverbal subjects in expletive sentences.

- (103) On Tuesday there will, but on Friday there will not, be a man in the garden.

Now we can construct sentences with locative inversion as opposed to presentational *there*.

- (104) a. For this cause there were, but for that cause there were not, slaughtered thousands of innocents.
 b. *For this cause were, but for that cause there were not, slaughtered thousands of innocents.

I include *there* in the second conjunct to try to control for the incompatibility of locative inversion with negation. Regardless of whether it is present or not, the first conjunct is irredeemable. The pair below represents a right-node-raising context without negation, with auxiliaries other than *do*.

- (105) a. For this cause there may be, and for that cause there certainly have been, slaughtered thousands of innocents.
 b. *For this cause may be, and for that cause certainly have been, slaughtered thousands of innocents.

Moving a VP by right node raising is ungrammatical with locative inversion, as expected, contrasting with presentational *there*.¹²

3.7. SUMMARY. All of the environments for *do*-support, what I am referring to as SP contexts, systematically disallow locative inversion, although they do allow presentational *there*. The last-resort analysis of *do*-support has no ready way to accommodate this observation. This account says that *do* is inserted when the tense/agreement affix and the main verb are separated and cannot be put together (by affix hopping or the equivalent). Negation separates them, as does subject-auxiliary inversion, while ellipsis and VP fronting also separate them in the relevant way by the verb being missing. The

¹² One referee finds the following example of right node raising acceptable.

- (i) From this observation may, and from that one certainly will, emerge a new understanding of natural language.

I disagree, as do all of the speakers I have asked, although I do find it better than the examples in the text. I suspect that this particular example might be improved somewhat by the pauses that characterize right node raising. In n. 11 I noted that the adverbial *in fact*, with a pause on either side, improves locative inversion with emphatic *do* and negation. I suspect that something similar might be going on here, for any speakers who find (i) acceptable. Again, I have no explanation for any redeeming effect of pauses.

only thing the SP contexts have in common on this analysis, then, is that adjacency between tense/agreement and the main verb fails. (Note that this is actually not common to emphatic *do*, which requires a different account.) This is the only thing that could be referred to in an attempt to understand the restriction on locative inversion in this analysis. Any such attempt will fail, however, because locative inversion is still ungrammatical even when tense/agreement and an auxiliary verb are joined together, presumably through verb movement of the auxiliary. In such cases adjacency is met: the auxiliary and tense/agreement are adjacent and do get together morphologically.

The problem is even worse in the nonfinite case, repeated below.

- (106) a. Out of that room seems to have stepped a large purple dragon.
 b. *Out of this one seems to (have), too.
 c. Out of this one there seems to have, too.

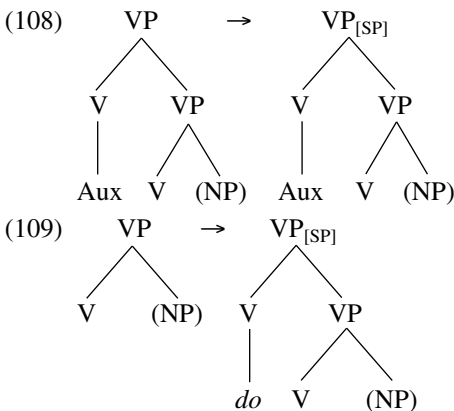
Do-support never takes place in nonfinite clauses, and most analyses do not require adjacency in nonfinite clauses. Yet locative inversion and ellipsis (and negation) are still incompatible.

I conclude that the SP contexts must share some positive specification that exists even when another auxiliary is present, or the clause is nonfinite, and *do*-support does not take place. All of them, I argue, are characterized as [SP], for the ‘Special Purpose’ VPs of Baker 1991. The generalization given in 86 above can then be stated in the following terms.

- (107) A null expletive may not occur (at any level of the derivation) in a clause that requires an [SP] VP.

In the next section I outline an analysis of *do*-support that makes use of Baker’s [SP] VPs. I suggest that Infl in the relevant clauses selects an [SP] VP. The restriction against locative inversion will then be that an Infl that selects an [SP] VP does not license a null expletive in its specifier.

4. AN ANALYSIS OF *do*-SUPPORT. In Baker’s 1991 account, auxiliary verbs are verbs that take VP complements. Maximal VPs—the extended VP including the main verb and all auxiliaries—have corresponding Special Purpose [SP] VPs. For all of the auxiliaries, the [SP] VP is the same as the regular VP. For main verbs, however, the [SP] VP is *do* plus the VP.



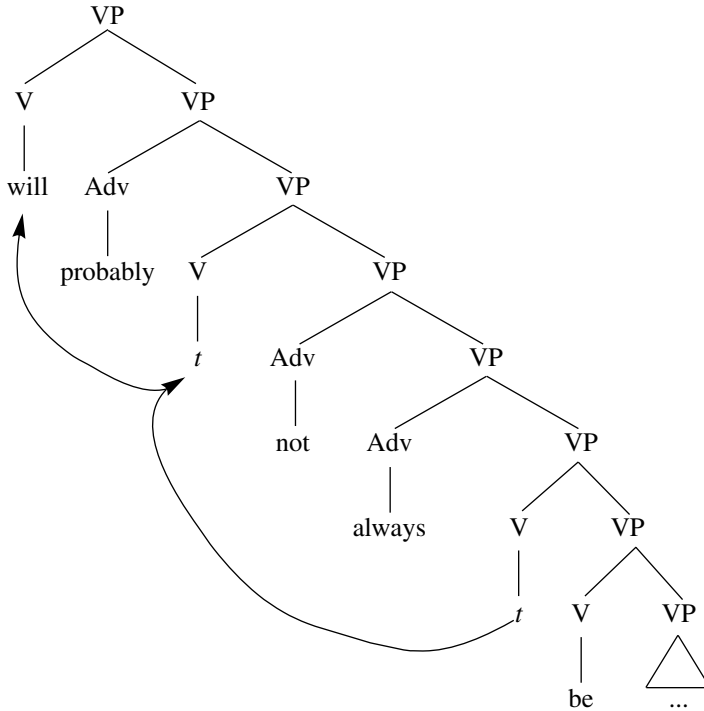
That is, [SP] VPs are always headed by an auxiliary. Furthermore, VPs headed by *do* are—in modern Standard English (see below)—always [SP].

The idea here is that VPs have a special form that is used for various syntactic purposes. This special form always has an auxiliary. If the maximal VP already has an aux-

iliary, the special form is the same. If there is no auxiliary, the special form will have a semantically contentless auxiliary, *do*. Thus, *do* never cooccurs with any other auxiliary, because the special form of a VP with an auxiliary requires nothing else. By general principles of economy, nothing else is allowed.

Baker's concern is the placement of auxiliary and main verbs with respect to negation and adverbs. In Baker's analysis, negation and adverbs left-adjoin to VPs (V-bar for Baker). An obligatory rule moves finite [SP] verbs to the left of *not*, and another rule moves unstressed finite verbs to the left periphery of their phrases, crossing over adverbs (Baker 1991:395–96, ex. 17).¹³

(110) The students will probably not always be told what the answer is.



(Baker gives the landing site of verb movement across *not* and across adverbs as another V position. I assume here that the final landing site of the tensed verb is Infl. It is not important here whether there is a further step of movement to Infl in the tree above, or the step across the final adverb is movement directly to Infl. See more on movement to Infl below.)

The rule moving unstressed finite verbs over adverbs is not important here, and in addition it appears that Baker was wrong that stressed auxiliaries may not precede adverbs (for instance, he cites *Harold was never very polite* as ungrammatical (Baker 1991: 396, ex. 18), but most speakers accept it in certain contexts). I simply note that, like the

¹³ A more complete analysis of auxiliaries would distinguish subcategories of auxiliaries: modals, perfect(ive) *have*, progressive *be*, and passive *be*. The strict ordering relations among them can be explained by semantic constraints or by appeal to a universal hierarchy of tense, mood, aspect, and voice (or a combination thereof). This more complete analysis would need an explanation for why the modal subcategory is barred from gerunds, subjunctives, imperatives, and nonfinite clauses; ideally this explanation would be more than a stipulation that modals lack nonfinite forms. Because *do* is barred from the same environments (except imperatives), one might want to identify it as a member of the modal subcategory, as in Schütze 2004.

rule moving a finite verb over negation, the rule moving a verb over adverbs has to be restricted to auxiliaries. I do not discuss adverbs or stress further, although I come back to the role of stress in ellipsis.

Departing further from Baker's analysis, I suggest that there is a selectional relation between the head of IP, Infl, and its complement VP. An Infl that takes an [SP] VP as complement is also specified [SP], and if VP is [SP], Infl must also be [SP] (one can formalize this as a feature-checking relation between Infl and its complement VP). Various kinds of Infl are specified as [SP]: the Infl that is the head of a clause with sentential negation; verum focus or emphatic Infl; Infl that will undergo head movement to C in a question (see below). So, for instance, Infl that heads a clause with negation will be [SP], and it will select an [SP] VP as complement. *Not* will adjoin to this VP. If there is no auxiliary, the [SP] VP must be headed by *do*. Whichever auxiliary is present, it will undergo movement past negation.

In VP ellipsis and VP displacement, I assume that an auxiliary whose complement is unpronounced (because of ellipsis or displacement) must be [SP]. Because an [SP] VP must be matched by an [SP] Infl, Infl will also be [SP]. (If there is more than one auxiliary pronounced above an ellipsis site, I assume that each of them above the auxiliary whose sister is elided must be [SP] because of the same general feature-matching requirement. All the VPs will then be [SP], and so will Infl.)

To summarize and formalize, there are several components to this analysis, including one movement rule.

- (111) Auxiliary verbs are verbs taking VP complements.
- (112) Preverbal adverbs, including *not*, left-adjoin to VPs.
- (113) Maximal VPs have corresponding [SP] VPs:
 - a. The [SP] VP corresponding to a maximal VP headed by an auxiliary is identical to the non-[SP] VP;
 - b. The [SP] VP corresponding to a maximal VP headed by a main verb is the auxiliary *do* taking that VP as complement.
- (114) The environments for *do*-support require [SP] VPs:
 - a. Negative Infl is [SP];
 - b. Emphatic Infl is [SP];
 - c. Infl that moves to C is [SP];
 - d. An elided or displaced VP is sister to an [SP] V.
- (115) FEATURE MATCHING: An [SP] Infl requires an [SP] VP; and an [SP] VP requires an [SP] Infl.
- (116) VERB MOVEMENT: Finite verbs obligatorily move to the left of *not*.

The verb-movement rule is restricted to auxiliaries because a negative Infl is specified as [SP]; its complement therefore must be headed by an auxiliary.

Now, we can state the restriction against locative inversion in SP contexts in the following way, as a licensing condition on the null expletive.

- (117) LICENSING CONDITION ON NULL *there* (revised, but to be revised again): Expletive *there* in Spec-IP can only be null when:
 - a. A PP has adjoined to IP, and
 - b. Infl is not [SP].

That is, the null expletive subject in locative inversion is only licensed by an Infl that is not specified [SP] (and it also needs a fronted PP).

Before discussing this licensing condition further, it is important to show that the analysis of *do*-support advocated here can capture all of the facts of the phenomenon.

4.1. LAST RESORT AND ADJACENCY. One of the most prominent such facts (which has motivated viewing *do*-support as a last-resort mechanism) is that—outside of imperatives—*do* may not cooccur with any other auxiliary.

- (118) a. Wilma is not skating right now.
 b. *Wilma does not be skating right now.
 c. *Wilma is not doing skate right now.
- (119) a. Wilma HAS been to Lhasa!
 b. *Wilma DOES have been to Lhasa!
 c. *Wilma HAS done be to Lhasa!

The Baker-style analysis captures this without difficulty: the [SP] VP corresponding to a maximal VP headed by an auxiliary is exactly the same as the non-[SP] VP. A VP headed by *do* is only the [SP] VP for a maximal VP headed by a main verb.

This analysis also captures the environments for *do*-support, viewed in the last-resort account as being about adjacency, without actually referring to adjacency. Instead, either Infl is specified as [SP], and it then requires an [SP] VP as complement (negation, inversion, emphasis); or a V must be [SP] in order to license nonpronunciation of its sister (VP ellipsis, VP displacement). There is no issue of adjacency.

I believe this to be correct, for several reasons. First, it has never been clear why negation disrupts adjacency, but other adverbs do not; in fact, adverbs seem to show that adjacency is not the issue at all. Second, nonfinite clauses and subjunctive clauses also indicate that adjacency is not involved. In subjunctives and optionally in infinitives, nothing moves across negation.

- (120) a. I asked that they not harass my client.
 b. I suggest that you not be watching TV when I get home.
- (121) a. I hope not to fail this class.
 b. I hope to not fail this class.

In the standard account, 120a, at least, should involve a stranded tense/agreement morpheme. That account has to say that in the subjunctive case, stranding does not matter, presumably because the tense/agreement morpheme is null. But it is equally null in most cells of the present-tense paradigm.

- (122) a. I will file an injunction if they harass my client.
 b. I won't file an injunction if they do not harass my client.

There is no morphological difference between the form of *harass* in 122a and 120a. Yet *do*-support applies in the former but not in the latter when negation is present. The last-resort analysis therefore has to say that some null tense/agreement morphemes cannot be stranded, but some can. I see no principled way in this analysis to account for the difference; appealing to the finite-nonfinite distinction is really lacking as an explanation, since all that should matter for adjacency is whether the morpheme is present and has morphological support. Theories that posit a uniform clausal architecture across finite and nonfinite clauses must posit a head hosting tense/agreement (which I am calling Infl here) in subjunctive and nonfinite clauses as well as finite ones; but then it is unclear why the subjunctive or nonfinite head would not require morphological support, but a null finite one does.

It is often claimed that, crosslinguistically, nonfinite verbs do not move as high as finite ones (e.g. Pollock 1989). But the stranding analysis really has no way to use this distinction to capture the facts of English; in fact, in other languages, there are visible tense/agreement morphemes on nonfinite verbs. Pollock (1989) even posits an affix-hopping rule in French to get the nonfinite morphology onto the verb. In other words,

there is no principled difference between finite and nonfinite tense/agreement morphology that could explain the difference in English. The stranding analysis is forced to simply stipulate that in English nonfinite Infl does not need morphological support, but finite Infl does, even when they are equally null.

The conclusion that this leads to is that adjacency is really not the issue in *do*-support. Consider also emphatic or verum-focus *do*: there is no issue of adjacency there, and yet *do* appears when there is no other auxiliary, and not when there is one, on the same pattern as *do*-support generally. In addition, Schütze (2004) discusses dialects (including earlier stages of English) where *do* is simply optional, and expresses no special emphasis, focus, or tense (or aspect) distinction. Modern Standard English also allows this in a particular (legal) register.

- (123) a. I, the undersigned, being of sound mind, do this day hereby bequeath ...
(Schütze 2004:497, ex. 2)
 b. We, the employees of Unity Airlines, do hereby announce our intention
 to ... (Schütze 2004:497, ex. 3b)

Again, the same pattern appears, according to which *do* may not appear in the presence of another auxiliary.

- (124) a. I, the undersigned, being of sound mind, (*do) have agreed to ...
 b. We, the employees of Unity Airlines, are/*do be in full agreement with
 management on ...

In these dialects and registers, the adjacency requirement is met, but *do*-support applies anyway. Hence, *do*-support is not about adjacency, nor is it a last-resort mechanism.

The Baker analysis has a simple way of approaching this phenomenon, referred to as ‘spurious *do*’ by Schütze (2004). This is to simply say that, in these dialects and registers, VPs headed by *do* are not necessarily [SP]. Then *do* may optionally appear in non-[SP] clauses. As for not appearing with other auxiliaries, the same explanation holds: VPs have a corresponding special form, with an auxiliary. The VP with *do* is only the corresponding auxiliary-headed VP for a VP that lacks an auxiliary. So, stating the idea outlined above in a slightly different way, maximal VPs have corresponding VPs headed by an auxiliary (which the grammar may or may not put to special uses). Only an auxiliary-headed VP may be [SP]. Semantically contentless *do* may be limited to being [SP] or not, depending on the dialect or register.

If this account of spurious *do* is correct, it predicts, perhaps surprisingly, that spurious *do* will be compatible with locative inversion, unlike obligatory *do*-support. This prediction is correct; the following sentences are grammatical in the sort of legal register that is required for spurious *do*.

- (125) We, the undersigned, having agreed that from our mutual cooperation do
 arise all of the benefits that we currently enjoy, do hereby enter into a compact ...
 (126) Your honor, we intend to show that in the defendant’s shipyards did appear
 a previously unheard-of amount of cocaine ...

This surprising contrast with the *do* that occurs in SP contexts confirms the main point of this article: that locative inversion is incompatible with the contexts that trigger obligatory *do*-support in finite clauses, not with *do*-support itself. In other words, it is specifically [SP] clauses that locative inversion is incompatible with. Clauses with spurious *do* are not [SP].

4.2. NONFINITE CLAUSES AND SUBJUNCTIVES. Returning to nonfinite and subjunctive clauses, in the Baker analysis that I am adopting, the [SP] VP corresponding to a nonfi-

nite VP is exactly the same as the non-[SP] VP. All such VPs are headed by the auxiliary *to* (see Pullum 1982 on the status of *to* as an auxiliary). As for subjunctives, I have hypothesized that only auxiliaries can head [SP] VPs in English. It follows that there must be a null auxiliary in subjunctive [SP] VPs that lack another auxiliary. That is, the [SP] VP corresponding to a subjunctive VP headed by a main verb is that VP plus a null auxiliary. I argue in §4.4 that this null auxiliary explains the pattern of ellipsis in subjunctives. For now, what is important is that the rule moving an auxiliary over negation is obligatory for FINITE verbs, but is optional for nonfinite *to* and unobservable in subjunctives.¹⁴

Negated subjunctives are still [SP], despite the absence of *do*-support; they disallow locative inversion, although positive subjunctives allow it.

- (127) a. I suggest that out of our kitchen come a dish so succulent as to make that critic drool into his napkin.
 b. *I suggest that out of our kitchen not come something as unsophisticated as a ragout.
 c. I suggest that out of our kitchen there not come something as unsophisticated as a ragout.
- (128) a. I asked that in our woods be planted many different kinds of mushrooms.
 b. *I asked that in our woods not be planted so many poisonous mushrooms.
 c. I asked that in our woods there not be planted so many poisonous mushrooms.

Similarly, locative inversion is incompatible with VP ellipsis in a subjunctive clause.¹⁵

- (129) a. In their lake were placed many varieties of fish. I suggest that in our lake *(there) be, too.
 b. Toward the enemy fleet are being hurtled huge, flaming projectiles. I ask that toward the enemy landing parties *(there) be too.

Just as in nonfinite clauses, *do*-support never actually takes place in subjunctive clauses. Only the [SP] VP analysis can account for all of the facts. Here, subjunctive clauses are [SP] if they have sentential negation or VP ellipsis. The [SP] VP for a main verb in a subjunctive clause happens to look the same as the non-[SP] VP, although I hypothesize the presence of a null auxiliary (motivated in §4.4 and indicated with ‘ \emptyset ’ in the tree below; see also Roberts 1985:n. 12, Lasnik 1995, and Potsdam 1998:137–55).

¹⁴One analysis that has been proposed is that the null auxiliary is always present in subjunctives, even with other auxiliaries—it is a modal for subjunctive mood—and may move over negation. See Roberts 1985:n. 12, Lasnik 1995, and Potsdam 1998:137–55.

¹⁵Potsdam (1998:67–70) claims that VP ellipsis is not grammatical in nonnegative subjunctive clauses with stranded auxiliaries, giving examples like (i).

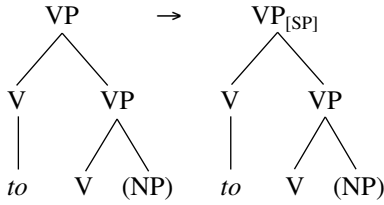
- (i) a. *We can’t count on Josh to be waiting for us at the airport so we request that you be ___ instead.
 (Potsdam 1998:68, ex. 117a)
 b. *By the time Wanda finishes, it is necessary that Bob have ___ too.
 (Potsdam 1998:68, ex. 117e)

While it does seem to be true that ellipsis is not so good with copular *be*, as in (ia), I find ellipsis with *have* in (ib) perfect, and ellipsis with passive *be* is also grammatical; Potsdam’s example (his 117c) is indeed awkward, but better ones can easily be constructed, like (ii).

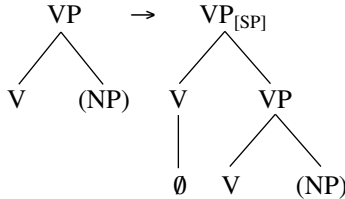
(ii) Those suspects are being followed around the clock. I suggest that these suspects be ___, as well. There does seem to be speaker variation here, as Potsdam discusses; some speakers do not accept the examples in 129 even with *there*. But those that do accept them with *there* do not without it.

The VPs that I am proposing for nonfinite clauses and subjunctives are those in 130 and 131.

(130) nonfinite



(131) subjunctive



4.3. AFFIX HOPPING. In the [SP] analysis of *do*-support argued for here, getting the verb together with its tense/agreement morphology is not the issue. Nevertheless, we must ensure that the analysis can account for the morphological facts.

In my version of this analysis (and Baker's as well), there is no affix hopping. Instead, the morphology is done via selection, in the same way that most current accounts of English say that the *have* auxiliary selects the past-participle form of the verb in its complement, and progressive *be* selects the *-ing* form of the verb in its complement. The full selectional facts are given in 132.

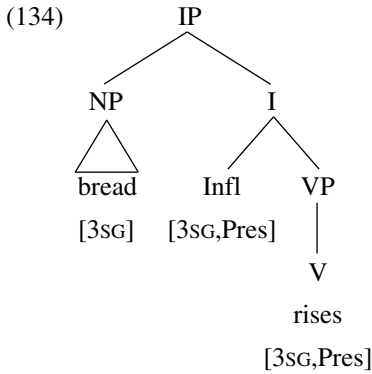
(132) Form selection

- a. modals: select the bare form of the verb
- b. *have*: selects the past participle (*-en*) form
- c. progressive *be*: selects the present participle (*-ing*) form
- d. passive *be*: selects the past participle (*-en*) form
- e. *do*: selects the bare form of the verb
- f. *to*: selects the bare form of the verb
- g. subjunctive null auxiliary: selects the bare form of the verb
- h. nonfinite Infl (including subjunctive): selects the bare form of the verb
- i. finite Infl: selects the tensed form of the verb matching the tense of Infl and the person and number features copied onto Infl by agreement with the subject

All analyses have (a–h), but most do (i) through affix hopping or covert V-raising (Chomsky 1993) rather than selection. I see no good reason to distinguish (i) from the other selectional patterns (in fact, Chomsky 1957 treated them all the same, as affix hopping).

Finite Infl agrees with the subject, and replicates the person and number features of the subject. It then selects the tensed and agreeing form of the head of its VP complement, whether that is a main verb or an auxiliary.

- (133) a. Bread rises. Rolls rise.
b. The bread is rising. The rolls are rising.



All verbs are listed for at least the forms in 135.

- (135) rise
- present tense, 3SG: rises
 - past tense: rose
 - past participle: risen
 - present participle: rising
 - bare: rise

The bare form appears everywhere that nothing else is appropriate (e.g. present tense other than third-person singular). (The 3SG present tense and present-participle forms do not really need to be listed, since they are completely regular across all verbs. Only one verb, *be*, has more forms listed, for different agreement features.)

In my account, then, there is no affix hopping, and no need for verb movement to get the morphological features on the verb or auxiliary. There is one agreement relation, and local selectional relations, with each head selecting the form of the head of its complement. This selection works right through adjuncts: each head will still select the form of the HEAD of its complement, regardless of how many adverbs, including negation, are adjoined to its complement. There is no sense in which negation interrupts affix hopping; *do* appears because the Infl of *do*-support environments, including negation, selects an [SP] VP. Verb movement is then driven by something other than morphology: an obligatory, language-specific rule moving a finite verb over *not*.

4.4. ELLIPSIS AND THE STATUS OF *not*. Lobeck (1995) and others have argued that *not* is a head, not an adverb, on the basis of ellipsis. It seems to license ellipsis, like an auxiliary and unlike other adverbs.

- (136) Lobeck 1995:156, exx. 38b,c
- *John is leaving and Mary's ___ too.
 - John is leaving but Mary's not ___.

- (137) a. *John's always smoking but Mary's rarely.
b. John's always smoking but Mary rarely is.

Potsdam (1998) adds data from subjunctives, again appearing to show that *not* licenses ellipsis, unlike other adverbs.

- (138) a. *Kim needn't be there but it is imperative that the other organizers ____.
(Potsdam 1998:67, ex. 116a)
b. Kim needs to be there but it is better that the other organizers not ____.
(Potsdam 1998:70, ex. 120a)

In the Baker analysis adopted here, *not* is just like other adverbs in adjoining to VP (and it is essentially unordered with respect to other adverbs; see Baker 1991). It is therefore important to show that it is not really the putative head status of *not* that licenses ellipsis in these examples.

First, *not* is clearly not sufficient to license ellipsis. In subjunctives with other auxiliaries, ellipsis of everything but *not* is ungrammatical.

- (139) a. It's OK for Mary to be seen in public, but it's important that Bill not *(be) ____.
 b. I suggest that this house not be sold. Bill asks that this one not *(be) ____, either.

This is odd, if *not* is a head that can license ellipsis just like any auxiliary.

Second, Baker's 1991 analysis already has the means to account for the data in 136 and 137, without any special role for *not*. According to Baker, deletion of the complement of an auxiliary prevents it from being destressed. If we further add that only destressed auxiliaries can contract, then the ill-formedness of 137a and 136a are accounted for.

The one exceptional property of *not* that we have to recognize is that it can bear stress, permitting an auxiliary that would otherwise not be destressed to become destressed and contract. This stress is clearly audible in many cases, like in the right-node-raising cases discussed above, and it is not present on other adverbs.

- (140) a. Negation DOES, but adverbs do NOT, bear stress that would otherwise go on an auxiliary.
 b. Negation sometimes MIGHT, but adverbs rarely WILL, bear stress that would otherwise go on an auxiliary.
 c. *Negation might sometimes, but adverbs will rarely, bear stress that would otherwise go on an auxiliary.

The auxiliary must remain to the right of the adverb in 140b and 140c and bear stress. (It cannot be destressed even if heavy contrastive stress is placed on the adverb in 140b.)

So, we are forced to recognize a difference between *not* and other adverbs in their stress properties. This difference, I contend, is sufficient to account for ellipsis, without positing a categorial difference between *not* and other adverbs.¹⁶ If *not* can bear stress in lieu of an auxiliary, this will permit an auxiliary whose complement has been elided to appear to the left of adverbs and to contract, explaining 136b.

To account for subjunctives, I hypothesize that they have a null auxiliary if there is no other auxiliary present (or perhaps always). As stated above without justification, the [SP] VP corresponding to a subjunctive main verb is the VP plus a null auxiliary. This null auxiliary will explain the pattern of ellipsis in subjunctives, if we posit, perfectly reasonably, that a null auxiliary cannot bear stress. Since only a stressed auxiliary can have its complement VP elided, we predict that VP ellipsis without any other auxiliary will be ungrammatical in a subjunctive clause.

- (141) a. Mary eats candy occasionally, but Bill never does ____.
 b. *It's OK for Mary to eat candy occasionally, but it's important that Bill never do.
 c. *It's OK for Mary to eat candy occasionally, but it's important that Bill never ____.

¹⁶The ability of *not* to bear stress is probably related to its function as sentential negation, which, the reader will recall, also made it differ from the other adverbs in requiring an [SP] VP. This is a special function that I related to Infl, even though the morpheme expressing it is a simple VP adverb.

- d. It's OK for Mary to eat candy occasionally, but it's important that Bill never do so.

VP ellipsis requires an [SP] VP; the [SP] VP of a subjunctive clause is headed by a null auxiliary if there is no other auxiliary. Since the null auxiliary cannot bear stress, it cannot have its complement elided. The only grammatical option is a pro-form like *do so*, not ellipsis.

In contrast, ellipsis with other auxiliaries is fine.

- (142) a. It's OK for Mary to be seen in public, but it's important that Bill not be ____.
 b. I suggest that this house not be sold. Bill asks that this one not be ____, either.
 c. If the laborers haven't come to a decision, it's important that the leaders not have ____, either. (Potsdam 1998:70, ex. 122c)

The saving effect of negation, then, is that it can bear stress, which permits the null auxiliary to be present, satisfying the requirement for an [SP] VP, while still permitting the null auxiliary to be stressless.

Further support for this analysis comes from ellipsis in nonfinite clauses, where *not* also does not license ellipsis; only *to* does.

- (143) a. I expect Oxana to win the gold, and I expect Nancy not *(to).
 b. I hope for Oxana to win the gold, and I hope for Nancy *(to) not.

If *not* could license ellipsis by itself, there would be no need for *to*, and it should be able to elide. In the analysis given here, in contrast, *to* is a nonfinite auxiliary, and it can head [SP] VPs in nonfinite clauses. Only auxiliaries can license ellipsis; as an auxiliary, *to* can do so. It can also bear stress, or negation can, giving the two ordering possibilities above.

This analysis, then, provides a uniform characterization of [SP] VPs as all being headed by auxiliaries, while also accounting for the pattern of ellipsis in subjunctives and infinitives and the saving effect of *not*. It does so without holding that *not* is a head, which is an advantage since that analysis overgenerates in licensing ellipsis.¹⁷

4.5. SUBJECT-AUXILIARY INVERSION. The last phenomenon that a complete account of *do*-support needs to explain is subject-auxiliary inversion, and what triggers it. I also need to explain why extracting the preverbal PP in locative inversion does not trigger subject-auxiliary inversion. Recall that I suggested that the generalization about subject-auxiliary inversion is constraint 61, repeated here.

- (61) The WH-Infl constraint: In a matrix question, there must be no overt NP between a WH-phrase moved to Spec-CP and the verb that bears tense/agreement.

¹⁷ Schütze (2004) gives one other argument that *not* is a head. This is the fact that, in certain registers at least, it can undergo subject-auxiliary inversion along with an auxiliary, as in (i).

- (i) Have not the tens of thousands of words we have written on city planning sunk in?
 (Schütze 2004:502, ex. 20b)

I tentatively suggest that this phenomenon involves rightward movement of a VP (here, *sunk in*), followed by remnant movement of the rest of the VP (*have not t*) to Spec-CP. Some evidence for this is that it is completely ungrammatical with WH-movement, as seen in (ii).

- (ii) *Who might not the tens of thousands of words we have written have affected?

Normally, WH-movement and subject-auxiliary inversion cooccur without any problem; if this phenomenon were normal subject-auxiliary inversion, it should be perfectly grammatical with WH-movement.

The analysis that I construct here is based on this generalization.

I take the syntactic constraint here to be purely about word order, and not about abstract features or the syntactic means that a language uses to achieve the word order. It is clear that languages that have such a constraint, like English, most Germanic languages, and most Romance languages, use different means to satisfy it. The Romance languages, in particular, appear not to use head movement: auxiliaries and main verbs together often invert with the subject, and even the object can invert along with the verb (see the papers collected in Hulk & Pollock 2001 and the references there).

English does appear to use head movement, so I adopt the fairly standard theory that subject-auxiliary inversion involves Infl to C movement. The highest finite auxiliary moves to Infl, after crossing over negation and adverbs (see above). Departing from standard assumptions, I assume that the derivation works top-down, as in Phillips 1996, 2003 and Richards 1999. Therefore, the first thing the grammar builds is CP, and the first constituent it puts into the tree is the WH-phrase. I also assume that the syntax selects elements from the lexicon to work with, as in Chomsky's 1993 notion of NUMERATION. Then, at the point where it is building CP, it knows whether there is going to be an overt subject in Spec-IP to intervene between the WH-phrase and the verb that bears tense/agreement, and if there is, it will merge Infl (including the auxiliary) into C and use an [SP] Infl that will select an [SP] VP. In this way the need for an [SP] VP is determined immediately, at C, without having to construct a VP and IP first. (Traces or copies of the WH-phrase and the auxiliary will then be merged at intermediate and base positions as the tree is built downward; see the references cited above.)

To give a concrete example, consider subject versus object extraction in 144.

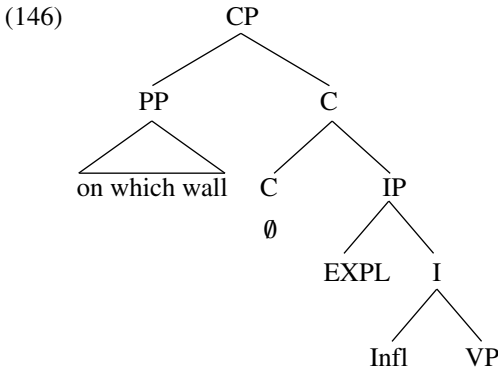
- (144) a. Who saw you?
b. Who did you see?

The grammar first merges *who* into Spec-CP in both cases. In 144a, it can see at C that what will be merged into Spec-IP is just an unpronounced copy of *who*, and it will not merge Infl into C. In 144b, in contrast, the grammar can see that what will be merged into Spec-IP is *you*; if it does not merge Infl into C, constraint 61 will be violated. It therefore merges [SP] Infl, realized as *did*, into C.

In the case of a questioned PP in locative inversion, things are slightly more complicated. Consider the pair in 145, from Bresnan 1994:102, but with the null expletive indicated.

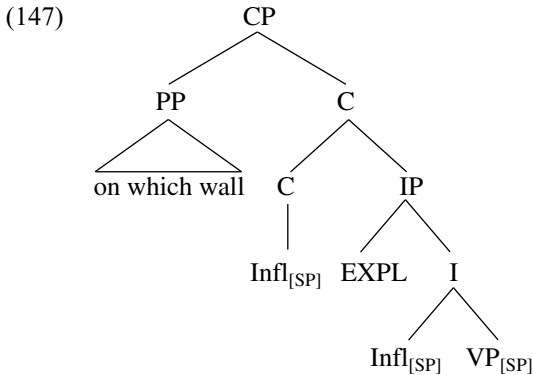
- (145) a. On which wall *pro* hung a portrait of the artist?
b. On which wall did there hang a portrait of the artist?

Again, the first thing that will be merged is the PP, into Spec-CP. The grammar now has two choices. First, it can refrain from merging Infl into C, and instead merge the expletive into Spec-IP, as in 146.



Infl will not be valued [SP] (assuming there is no other reason for it to be [SP]). This non-[SP] Infl will license nonpronunciation of the expletive. If it is not pronounced, a grammatical sentence will result, namely 145a; this sentence satisfies constraint 61. If the expletive is pronounced (**On which wall there hung a portrait of the artist?*), constraint 61 will be violated.

The second choice is to merge Infl into C, which requires an [SP] Infl, as in 147.



Since an [SP] Infl does not license nonpronunciation of the expletive, it must be pronounced, as *there*. The result will be 145b, which satisfies constraint 61.

The two analyses argued for here, then—the null-expletive analysis of locative inversion and the [SP] analysis of *do*-support—together yield an account of subject-auxiliary inversion when the fronted PP is questioned that does not rely on viewing the PP as a subject.

4.6. MORE ON THE VERB-MOVEMENT RULE. I have presented the rule that moves a finite verb over negation as an English-specific rule that must simply be stated in the grammar of English. This is how it is formulated in Baker 1991. In this conception, universal grammar makes certain types of movement available, such as A-bar movement, A-movement, and verb movement. Verb movement has the characteristics that it is usually thought to have: it moves a head from one head position to another, obeying the head-movement constraint (Travis 1984). It is always upward, moving one head to a c-commanding one. One advantage of the theory here is that it has done away with affix hopping, the one lowering movement that has always been problematic for transformational theories (see the discussion in Pollock 1989 and Chomsky 1993). Verb movement, then, has certain universal characteristics, but languages may choose to use it, or not. Its exact range of application in a language is directly observable and easily learned.

That being said, it is also possible to formulate the verb-movement rule as feature attraction, as in Chomsky 1993. This formulation would have finite Infl (Tense in Chomsky 1993 and subsequent) bear a feature that attracts verbs, but only auxiliary verbs in English.

I see little difference between these two formulations. Both refer to a universal mechanism of verb movement. Both stipulate the range of its application in each language. That is, both have a language-particular statement about when verb movement applies. Whether one calls this a ‘rule’ or not is simply terminology. In actual fact, the feature-attraction theory also posits a language-particular rule.

There is one empirical difference between the two formulations: the feature-attraction theory has the highest auxiliary always move to Infl, while the language-specific rule, as formulated by Baker (1991), only moves a finite verb over *not* (and optionally over adverbs). It does not necessarily move the auxiliary to Infl when *not* is not

present (and nothing would move if there is no auxiliary). While I assume that the highest auxiliary necessarily moves to Infl when it moves on to C in subject-auxiliary inversion, there does not seem to be any evidence that could decide whether the auxiliary moves to Infl in the absence of *not*. (The ability of stressed auxiliaries to remain to the right of adverbs, as in *She always HAS loved cheesecake*, seems to suggest that movement to Infl is not always necessary, but one could also allow more freedom in the placement of adverbs.)

4.7. WHY THE NULL EXPLETIVE IS INCOMPATIBLE WITH SP CONTEXTS. As stated above, my analysis of the restriction against locative inversion in [SP] contexts is that an [SP] Infl does not license nonpronunciation of the expletive in its specifier. In negation, emphasis, and subject-auxiliary inversion, Infl is [SP] and selects an [SP] VP as sister; it therefore disallows a null expletive. In VP ellipsis and VP displacement, a V must be [SP] to license nonpronunciation of its sister, and Infl must therefore be [SP] by the feature-matching requirement. VP-ellipsis and VP-displacement contexts therefore also do not license the null expletive in Spec-IP.

While I do not yet have a complete explanation to offer for why an [SP] Infl would not license a null expletive, I am able to do a little more than simply stipulate it. The reader will recall that English has another null expletive, the null extraposition expletive argued by Postal (2004) to exist in *as*-parentheticals (see above). Now, null *there* seems to require a PP to be fronted in order to be licensed; the null extraposition expletive also requires something to be fronted, namely *as*.

- (148) a. Around the bend came a train.
 b. *Came a train around the bend.
- (149) a. Jefferson was a slave owner, as is widely acknowledged.
 b. *Is widely acknowledged that Jefferson was a slave owner.

So, null expletives are licensed by being associated in some way with a fronted phrase. Perhaps the feature [SP] blocks this association somehow. Although the effect seems to be weaker for the null extraposition expletive, it does appear that [SP] contexts also block its appearance. Ross (1973:n. 21, 1983) noted that negation is incompatible with *as* generally, whether or not there is a null expletive.

- (150) a. *Mike does not speak Urdu, as I don't think. (Ross 1973:n. 21, ex. (aii))
 b. ??Jefferson was a deist, as is not widely known.

While there is probably another explanation for the incompatibility of *as* with negation (see, among others, Rizzi 1990), there is no other explanation that I know of for the incompatibility of the null extraposition expletive with other [SP] contexts, like VP ellipsis and emphatic *do*.

- (151) a. *Jerry was arrested, as is well known, but Bobby was too, as should be.
 b. Jerry was arrested, which is well known, but Bobby was too, which should be.
- (152) a. ??It is now certain that Cheney deliberately lied about Iraq, as always did seem likely.
 b. It is now certain that Cheney deliberately lied about Iraq, which always did seem likely.

The null extraposition expletive with *as* contrasts with *which*, which patterns for Postal's tests above like the sentential subject itself.¹⁸

¹⁸ *Which* is ungrammatical with the class of verbs that do not permit sentential subjects, and grammatical with the class that allows sentential subjects but does not allow extraposed clauses.

Although it is impossible to test the other SP contexts, and the incompatibility here seems somewhat weaker than with locative inversion, it does appear that an [SP] Infl is not compatible with any null expletive in English. I tentatively suggest that null expletives are only licensed by being associated with a fronted phrase. This association is somehow blocked by Infl being specified [SP]. I therefore rephrase the licensing condition on null *there* as follows, making it more general.

(153) LICENSING CONDITION ON NULL EXPLETIVES (final version):

- a. An expletive in Spec-IP can only be null when it is associated with a fronted phrase (adjoined to IP or moved to Spec-CP).
- b. The feature [SP] on IP blocks association between an expletive in Spec-IP and a fronted phrase.

If Infl is [SP], its maximal projection, IP, will also be [SP], by general principles of feature percolation. This [SP] feature on IP blocks the licensing relation between the fronted phrase and the null expletive. Although I do not work this out here, one reason it might is that the licensing feature of the fronted phrase is also an [SP] feature. Suppose that universal grammar allows a class of [Special Purpose] features, with specific subtypes making reference to other grammatical categories and features (like the difference between main and auxiliary verbs in English). Then a fronted phrase, like *as*, that corresponds to an extraposed clause, or a PP, can bear a different subtype of the feature [SP], and this is what licenses the null expletive. Then, an [SP] feature on IP will block the licensing relation by some general notion of featural minimality: being the same type of feature, it will intervene between the licenser (adjoined to IP or moved to Spec-CP) and the null expletive in Spec-IP. Obviously, such an account must be fleshed out with a complete analysis of extraposition and *there* expletives, as well as a precise notion of featural minimality, both of which are beyond the scope of this article. I therefore leave it with the constraint as stated in 153.

4.8. ARBITRARINESS. It may seem that the feature [SP] that I have motivated here is completely arbitrary. A referee suggests that a language could just have a feature '[weird]' that could be referred to by rules and constraints. This is not true at all, however; as just stated, I am hypothesizing that universal grammar has a class of [Special Purpose] features that particular languages might make use of, with specific subtypes making reference to other grammatical categories. In English, [SP] on Infl and VP refers to the category of auxiliary verbs. The distinction between auxiliary and main verbs is one that simply has to be recognized, and, being present, individual languages can refer to it in their [SP] features. So, this theory does NOT lead to the expectation that arbitrary features like '[weird]' could be part of the grammar of a language; only features that are part of universal grammar can be referred to by language-particular rules and constraints via a category of [Special Purpose] features.

5. CONCLUSION: THE NATURE OF THE GRAMMAR. Let me recapitulate what I hope to have shown in this article. First, the last-resort account of *do*-support is not correct; instead, a version of Baker's 1991 [Special Purpose] VPs is. There is a feature specification common to all *do*-support contexts, whether *do*-support actually applies or not. This is the feature [SP], a feature particular to English but making reference to cate-

-
- (i) a. *Diamonds are not actually rare, which is usually felt/held/said/supposed/thought (by everyone intelligent).
 - b. Languages do not have the sort of verb in question, which is captured/expressed/reflected by this theory.

gories available in universal grammar (the distinction between main and auxiliary verbs). There is no operation of *do*-support; instead, certain syntactic contexts require an [SP] Infl, which requires a matching [SP] VP (or vice versa). Second, there is also a language-particular rule moving finite verbs across negation. Third, English has (at least) two null expletives, which require special licensing. The English-specific licensing constraint says that the null expletive is licensed by a fronted phrase. An [SP] Infl blocks this licensing relation. Fourth, syntactic phenomena that were thought to be about subject extraction—the anticomplementizer constraint, the parallelism constraint, the lack of subject-auxiliary inversion in subject questions—are actually not. The lack of subject-auxiliary inversion in subject questions, in particular, is actually due to a constraint on word order that requires a specific syntactic response.

I repeat the important rules and conditions that I have formalized here, in the order in which they were introduced.

- (61) The WH-Infl constraint: In a matrix question, there must be no overt NP between a WH-phrase moved to Spec-CP and the verb that bears tense/agreement.
- (113) Maximal VPs have corresponding [SP] VPs:
 - a. The [SP] VP corresponding to a maximal VP headed by an auxiliary is identical to the non-[SP] VP;
 - b. The [SP] VP corresponding to a maximal VP headed by a main verb is the auxiliary *do* taking that VP as complement.
- (114) The environments for *do*-support require [SP] VPs:
 - a. Negative Infl is [SP];
 - b. Emphatic Infl is [SP];
 - c. Infl that moves to C is [SP];
 - d. An elided or displaced VP is sister to an [SP] V.
- (116) Verb movement: Finite verbs obligatorily move to the left of *not*.
- (153) LICENSING CONDITION ON NULL EXPLETIVES (final version):
 - a. An expletive in Spec-IP can only be null when it is associated with a fronted phrase (adjoined to IP or moved to Spec-CP).
 - b. The feature [SP] on IP blocks association between an expletive in Spec-IP and a fronted phrase.

The first issue with these conditions is that they are language-particular. The WH-Infl constraint (61), however, is actually not limited to English; I have suggested that the same constraint is active in other languages as well.¹⁹ Hence, it is probably a constraint of universal grammar that may be adopted by a given language or not. If this is correct, then a theory of grammar must include not just universal principles and parameters with different settings, but also a stock of constraints some subset of which a particular language will adopt. Turning to 114, which is language-particular, it should be said that having context-specific features is a common practice in syntactic theorizing. For instance, it is usual to posit a [WH] feature on a question C. All 114 says is that certain contexts in English have a feature that is particular to English, although this feature makes reference to universally available categories. There is absolutely nothing unorthodox about 114, then, except the feature involved. But that is amply motivated by the facts.

¹⁹I actually think that 61 should be more general than as currently stated, to cover all cases of movement to Spec-CP that are accompanied by verb movement to C. This would include negative inversion in English and verb-second phenomena in other languages.

Concerning the verb-movement rule in 116, as stated above, other current analyses of verb movement in English, like that of Chomsky 1993, also have a language-particular rule. All I am doing is recognizing verb movement as an operation made available by universal grammar, the exact range of application of which has to be specified for each individual language. Hence, most of what I am doing is not novel at all; the data here simply force us to recognize that we have not been able to get away from language-particular rules and constraints.

On the issue of language-particular syntax more generally, I refer the reader to Baker (1991), who discusses the tension between universal principles and language-particular rules. Baker concludes that appeal to language-particular rules yields the most parsimonious and most descriptively adequate account of the English auxiliary system. I agree with this conclusion, and offer the analysis given here for comparison with others. All of the others that I am aware of face insurmountable problems, particularly in accounting for the restrictions on locative inversion. Whichever theory best accounts for the data is most likely to be correct, all prejudice aside. It is also clear that languages simply differ in their V-movement rules: French moves both finite auxiliaries and main verbs over negation (Emonds 1976, 1978, Pollock 1989), while Scandinavian languages move neither in non-V2 clauses (Vikner 1995). All analyses have to posit SOMETHING language-particular to account for this variation.

On the acquisition side, it is true that a theory that excludes language-particular rules and constraints is a more restrictive theory, and it might seem that such a theory would therefore fare better in explaining how language acquisition could take place. Infants acquiring a language, however, should face no difficulty in learning language-particular rules like those posited here, since their effects are easily observable. There is much that is language-particular that infants certainly do acquire (phonology, morphology, etc.), and I see no conceptual difficulty with having them acquire the simple rules given here. Hence, a theory like this one that allows language-particular rules and constraints is perfectly learnable, and cannot be said to be deficient in accounting for language acquisition.

As for the licensing condition on null expletives in 153, at this point I see no alternative to simply stipulating it as a condition of English grammar. There do seem to be possible connections in other languages, such as German, where the conditions on the pronunciation of expletives include reference to other phrases fronting (Safir 1985, Sternefeld 1985). Even if other languages have similar licensing conditions, however, it would not be at all surprising for them to vary slightly from language to language, and indeed German is quite different from English. So long as determining what the conditions are is possible by direct observation, I again see no difficulty in children acquiring language-particular licensing conditions. But I also expect the conditions to refer to syntactic categories and features that are present in universal grammar and not to arbitrary, unmotivated features.

Turning back to the *wh*-Infl constraint in 61, I believe it to be the most at odds with the desire to formulate everything in syntax in terms of universal principles and parameters. I also believe, however, that the first question should be whether it expresses a true generalization. If it does, as I have argued here, it will require rethinking how syntax works. In the particular case of subject-auxiliary inversion, I believe that the crosslinguistic data strongly support a constraint referring to word order. Note that I am NOT claiming that syntactic mechanisms should be stated in terms of word order, or that phrase structures should be abandoned for linear order. I am only suggesting that a language can have a constraint referring to word order, and then use whatever syntactic mechanisms are avail-

able to try to satisfy that constraint. In the case at hand, English and the Germanic languages seem to use head movement, which has all of the properties that people previously supposed it did, but Romance languages and at least some of the Balkan and Slavic languages use different mechanisms (perhaps various types of phrasal movement). But it does seem to me that the constraint at work in every case is about word order: the WH-phrase and the tensed/agreeing verb need to be adjacent. (Verb-second in general is probably a reflex of the same constraint.) There is a clear analogy here with phonology, where languages can have the same constraint—for instance, a constraint against consonant clusters—but use different mechanisms to satisfy it: deletion versus epenthesis, for example. I see no reason why syntax would not work similarly.

Finally, one implication of the argument against the last-resort view of *do*-support is that it undermines some of the rationale for the minimalist program (Chomsky 1993). If grammatical operations like *do*-support are not last-resort mechanisms, the grammar does not operate in the way theorized to be the case in the minimalist program. This does not mean that notions of economy in general play no role in grammar; on the contrary, I appealed to such notions in my own account of *do*-support. I do think, however, that the data here suggest that syntactic mechanisms do not operate on ‘last resort’ basis. Instead, some are optional (like fronting a PP, or moving an auxiliary verb over an adverb), while others are obligatory (like moving a finite verb over negation).

REFERENCES

- AISSEN, JUDITH. 1975. Presentational-*there* insertion: A cyclic root transformation. *Chicago Linguistic Society* 11.1–14.
- AKMAJIAN, ADRIAN, and FRANK HENY. 1975. *An introduction to the principles of transformational syntax*. Cambridge, MA: MIT Press.
- BAKER, C. L. 1991. The syntax of English *not*: The limits of core grammar. *Linguistic Inquiry* 22.387–429.
- BORER, HAGIT (ed.) 1984. *Parametric syntax*. Dordrecht: Foris.
- BOWERS, JOHN. 1976. On surface structure grammatical relations and the structure-preserving hypothesis. *Linguistic Analysis* 2.225–42.
- BRESNAN, JOAN. 1977. Variables in the theory of transformations. *Formal syntax*, ed. by Peter Culicover, Thomas Wasow, and Adrian Akmajian, 157–96. New York: Academic Press.
- BRESNAN, JOAN. 1994. Locative inversion and the architecture of universal grammar. *Language* 70.72–131.
- BRESNAN, JOAN. 1995. Category mismatches. *Theoretical approaches to African linguistics*, ed. by Akinbiyi Akinlabi, 19–46. Trenton, NJ: African World Press.
- CHOMSKY, NOAM. 1957. *Syntactic structures*. The Hague: Mouton.
- CHOMSKY, NOAM. 1986. *Barriers*. Cambridge, MA: MIT Press.
- CHOMSKY, NOAM. 1993. A minimalist program for linguistic theory. *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger*, ed. by Kenneth Hale and Samuel Jay Keyser, 1–52. Cambridge, MA: MIT Press.
- CHOMSKY, NOAM. 1995. *The minimalist program*. Cambridge, MA: MIT Press.
- COOPMANS, PETER. 1989. Where stylistic and syntactic processes meet: Locative inversion in English. *Language* 65.728–51.
- CULICOVER, PETER W. 1976. *Syntax*. New York: Academic Press.
- CULICOVER, PETER W. 1992. The adverb effect: Evidence against ECP accounts of the *that-t* effect. *North East Linguistic Society* 23.97–111.
- CULICOVER, PETER W., and ROBERT D. LEVINE. 2001. Stylistic inversion in English: A reconsideration. *Natural Language and Linguistic Theory* 19.283–310.
- DOGGETT, TEAL BISSELL. 2004. *All things being unequal: Locality in movement*. Cambridge, MA: MIT dissertation. [Distributed by MIT Working Papers in Linguistics, Cambridge, MA.]

- EMONDS, JOSEPH. 1976. *A transformational approach to English syntax*. New York: Academic Press.
- EMONDS, JOSEPH. 1978. The verbal complex V'-V in French. *Linguistic Inquiry* 9.151-75.
- FALK, YEHUDA N. 1983. Subjects and long-distance dependencies. *Linguistic Analysis* 12. 245-70.
- FREIDIN, ROBERT. 2004. *Syntactic structures* redux. *Syntax* 7.101-27.
- GAZDAR, GERALD. 1981. Unbounded dependencies and coordinate structure. *Linguistic Inquiry* 12.155-84.
- GREEN, GEORGIA M. 1985. The description of inversions in generalized phrase-structure grammar. *Berkeley Linguistics Society* 11.117-45.
- GUNLOGSON, CHRISTINE. 2001. *True to form: Rising and falling declaratives as questions in English*. Santa Cruz: University of California, Santa Cruz dissertation.
- HAEGEMAN, LILIANE. 1994. *Introduction to government and binding theory*. 2nd edn. Oxford: Blackwell.
- HULK, AAFKE, and JEAN-YVES POLLOCK (eds.) 2001. *Subject inversion in Romance and the theory of universal grammar*. Oxford: Oxford University Press.
- JAYASEELAN, K. A. 1990. Incomplete VP deletion and gapping. *Linguistic Analysis* 20. 64-81.
- JOHNSON, KYLE. 2000. Few dogs eat Whiskas or cats Alpo. *Issues in semantics and its interface* (University of Massachusetts occasional papers 23), ed. by Kiyomi Kusumoto and Elisabeth Villalta, 59-82. Amherst: Graduate Linguistic Student Association, University of Massachusetts.
- KEYSER, SAMUEL JAY, and PAUL M. POSTAL. 1976. *Beginning English grammar*. New York: Harper and Row.
- KIM, JONG-BOK, and IVAN A. SAG. 2002. Negation without head-movement. *Natural Language and Linguistic Theory* 20.339-412.
- LASNIK, HOWARD. 1995. Verbal morphology: *Syntactic structures* meets the minimalist program. *Evolution and revolution in linguistic theory: Essays in honor of Carlos Otero*, ed. by Héctor Campos and Paula Kempchinsky, 251-75. Washington, DC: Georgetown University Press. [Reprinted in *Minimalist analysis*, ed. by Howard Lasnik, 97-119, Oxford: Blackwell, 1999.]
- LASNIK, HOWARD. 1999. A note on pseudogapping. *Minimalist analysis*, ed. by Howard Lasnik, 151-74. Oxford: Blackwell.
- LAWLER, JOHN M. 1977. *A* agrees with *b* in Achenese: A problem for relational grammar. *Syntax and semantics, vol. 8: Grammatical relations*, ed. by Peter Cole and Jerrold M. Sadock, 219-48. New York: Academic Press.
- LEVINE, ROBERT D. 1989. On focus inversion: Syntactic valence and the role of a SUBCAT list. *Linguistics* 27.1013-55.
- LIN, VIVIAN. 2000. Determiner sharing and the syntactic composition of determiner phrases. Paper presented at the 23rd GLOW colloquium, Vitoria-Gasteiz, Spain.
- LOBECK, ANNE. 1995. *Ellipsis: Functional heads, licensing, and identification*. Oxford: Oxford University Press.
- PHILLIPS, COLIN. 1996. *Order and structure*. Cambridge, MA: MIT dissertation. [Distributed by MIT Working Papers in Linguistics, Cambridge, MA.]
- PHILLIPS, COLIN. 2003. Linear order and constituency. *Linguistic Inquiry* 34.37-90.
- POLLOCK, JEAN-YVES. 1989. Verb movement, universal grammar, and the structure of IP. *Linguistic Inquiry* 20.365-424.
- POSTAL, PAUL M. 1977. About a 'nonargument' for raising. *Linguistic Inquiry* 8.141-54.
- POSTAL, PAUL M. 1998. *Three investigations of extraction*. Cambridge, MA: MIT Press.
- POSTAL, PAUL M. 2004. A paradox in English syntax. *Skeptical linguistic essays*, 15-82. Oxford: Oxford University Press.
- POTSDAM, ERIC. 1998. *Syntactic issues in the English imperative*. New York: Garland.
- PULLUM, GEOFFREY K. 1982. Syncategorematicity and English infinitival *to*. *Glossa* 16. 191-215.
- RICHARDS, NORVIN. 1999. Dependency formation and directionality of tree construction. *MIT Working Papers in Linguistics (Papers on morphology and syntax, cycle two)* 34.67-105.
- RIZZI, LUIGI. 1990. *Relativized minimality*. Cambridge, MA: MIT Press.

- ROBERTS, IAN. 1985. Agreement parameters and the development of English modal auxiliaries. *Natural Language and Linguistic Theory* 3.21–58.
- ROSS, JOHN ROBERT. 1973. Slifting. *The formal analysis of natural languages*, ed. by Maurice Gross, Morris Halle, and Marcel-Paul Schützenberger, 133–69. The Hague: Mouton.
- ROSS, JOHN ROBERT. 1983. Inner islands. Cambridge, MA: MIT, MS.
- SABBAGH, JOSEPH. 2007. Ordering and linearizing rightward movement. *Natural Language and Linguistic Theory* 25.349–401.
- SAFIR, KEN. 1985. Missing subjects in German. *Studies in German grammar*, ed. by Jindrich Toman, 193–229. Dordrecht: Foris.
- SCHÜTZE, CARSON T. 2004. Synchronic and diachronic microvariation in English *do*. *Lingua* 114.495–516.
- STERNEFELD, WOLFGANG. 1985. On case and binding theory. *Studies in German grammar*, ed. by Jindrich Toman, 231–85. Dordrecht: Foris.
- STOWELL, TIM. 1981. *Origins of phrase structure*. Cambridge, MA: MIT dissertation.
- TRAVIS, LISA. 1984. *Parameters and effects of word order variation*. Cambridge, MA: MIT dissertation. [Distributed by MIT Working Papers in Linguistics, Cambridge, MA.]
- VIKNER, STEN. 1995. *Verb movement and expletive subjects in the Germanic languages*. Oxford: Oxford University Press.
- WILLIAMS, EDWIN. 1978. Across-the-board rule application. *Linguistic Inquiry* 9.31–43.
- WOOLFORD, ELLEN. 1987. An ECP account of constraints on across-the-board extraction. *Linguistic Inquiry* 18.166–71.

Department of Linguistics and Cognitive Science
University of Delaware
Newark, DE 19716
[bruening@udel.edu]

[Received 16 June 2008;
revision invited 14 May 2009;
revision received 2 June 2009;
accepted 25 August 2009]