

# Issues of Affix Hopping in an Attract-F framework

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## I. Background

### *1.1. Introduction to the Affix Hopping system*

Lasnik (1994) proposes the following system to explain the difference between English *have* and *be* and English main verbs:

- (1) a. INFL is freely an affix or a set of abstract features
- b. Affixal INFL must merge with a V, a PF process demanding adjacency (“Affix Hopping”)

On this story, we suppose that a PF merger process exists, and can take structures created by syntactic movement and provide phonological shape, including “strong” changes such as irregular past tense forms.<sup>1</sup>

The typological variation between English, French, and Swedish with respect to the verb-raising behavior of main and auxiliary verbs is then captured as follows:

- (2) a. English: Auxiliaries come from the lexicon fully inflected, main verbs come from the lexicon as bare stems. INFL features are strong.
- b. French: All verbs come from the lexicon fully inflected. INFL features are strong.
- c. Swedish: All verbs come from the lexicon fully inflected. INFL features are weak.

Below are some brief discussions of some issues which arise if we take up the proposal in (1) and (2), pointing out some difficulties and areas for future research. The discussion will be set against a backdrop of recent proposals within the “Minimalist Program” set out in Chomsky (1993, *et seq.*), particularly those involving Attract-F, which are sketched below. Note that (1) and (2) was proposed by Lasnik in the context of a framework which was a predecessor to the Attract-F framework, and the goal of the present discussion is to discover how Lasnik’s proposal fares in this new setting.

### *1.2. The Attract-F framework*

Although a full discussion would be misplaced, a brief overview of the “Attract-F” framework will be helpful for discussion.

It has recently been suggested (Chomsky, 1994b, who in turn credits the suggestion to John Frampton) that the “movement” component of the human language computational system can be described in terms of a single operation “Attract-F[eature].” Attract-F is a movement rule, but from the perspective of

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<sup>1</sup>Whether this process has access to some component of the lexicon (such as the Vocabulary of Distributed Morphology in Halle & Marantz (1993)) or whether lexical items undergo derivation with a full paradigm of phonological features from which the merger process may choose is irrelevant to present concerns and unlikely to be empirically separable.

the target of movement. In the proposed framework, a “feature” is an element of a lexical entry involved in the computation which yields PF (the phonological output from the computation) and LF (the interpretable form of the representation, presumably an input to other cognitive modules concerned with semantics and interpretation) from an instance set of lexical items (or “numeration”). These features can be classified into three types: “formal,” “semantic,” and “phonological.” The semantic and phonological features are only of relevance to modules outside the syntactic computational system, but the formal features have a direct impact on the course of a syntactic derivation. One of the innovations of Chomsky (1994b) involves the explicit recognition of features being either “interpretable” or “uninterpretable” at the (LF) interface; this distinction captures the difference between, for example, Case features which play no role in the semantic interpretation, and number features, which do. In order for a derivation to successfully “converge” at LF, we assume that no uninterpretable features may remain, where the removal of uninterpretable features is caused by erasure under a “checking relation.” An uninterpretable feature may be either “strong” or “weak,” where a strong uninterpretable feature must be erased (checked) before “Spell-Out,” the point in the derivation at which the structure built by the syntax is submitted to the morphological/phonological processes that yield PF.

Attract-F itself is an operation which, given a phrase marker (the “target”<sup>2</sup>), locates the closest available feature which can enter into a checking relation with the target. For two features to be in a checking relation they must match and be in an appropriate structural “checking configuration” (which includes at least Spec-Head and head-adjoined configurations). Which is the “closest available” appropriate feature for an Attract-F operation can be simply stated in terms of c-command intervention by alternate candidates, modulo “equidistance” relations created by head-movement chains (basically unchanged from the version in Chomsky 1993).

In this framework, the apparent overt movement of categories is considered to be “generalized pied-piping,” which moves (only) enough to satisfy morphological/phonological requirements of the PF output, where we assume that, in general, nothing smaller than an  $X^{\circ}$  head (*e.g.*, a feature) is morphologically well-formed.

As they become important, other aspects of the Attract-F framework will be introduced or clarified, but this concludes the brief summary of the syntactic framework into which we will be considering adopting Lasnik’s proposals in (1) and (2).

### ***1.3. Advantages of the Affix Hopping system***

Lasnik discusses a number of advantages to adopting the system he proposes. Among them is that we would not need to suppose that *have* and *be* are immune to covert movement processes by virtue of their

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<sup>2</sup>I use the terminology “target” here to maintain consistency with earlier terminology under Move theories, where the target is the destination for the moved elements.

alleged semantic vacuity.<sup>3</sup> As Lasnik points out, there are reasons to doubt both parts of this supposition: *be* appears to be capable of having semantic content in English,<sup>4</sup> and we expect to find the crosslinguistic analogs of *have* and *be* to be required to raise by LF—even in languages, such as Swedish, in which they always appear *in situ* overtly. The Affix Hopping system in (1) and (2) provides an alternative explanation for the contrasting movement properties of English auxiliaries and main verbs by suggesting that main verbs need not move because they co-occur in numerations with “affixal INFL,” which has no strong verbal features to check, allowing the verb to remain in place at least until Spell-Out. The actual implementation of this system will need to be modified somewhat from that presented in Lasnik (1994), and will be the subject of much of the following discussion.

The main achievements of the system in (1) and (2) are that it allows a revival of a natural account of “*do*-support” (dating back to Chomsky (1957), but more recently reconsidered in Bobaljik (1994) and Halle & Marantz (1993) as well), and that it provides an account of the ellipsis facts which form a large part of the presentation in Lasnik. In these respects, if successfully translatable, the system proposed in Lasnik is an empirically desirable extension to the Attract-F framework.

## **II. Discussions and clarifications**

### ***2.1. Discussion of the ellipsis data***

We turn now to the ellipsis facts presented by Lasnik. Through consideration of additional data, we will come to some slightly different generalizations from those arrived at by Lasnik.

The main goal of the discussion in Lasnik (1994) was to show that we have a natural account of some instances of VP-ellipsis if we assume that main verbs undergoing ellipsis are in bare form in the syntactic structure and that ellipsis occurs under identity. As evidence, we see an ability to do ellipsis with mismatched inflected main verbs, while similarly mismatched *have* and *be* are not elidable. Here, we will also see that all verbs, including *have* and *be*, appear to be “bare” (under this interpretation of the facts) whenever they are non-initial in a string of verbs. As an illustrative corollary of this idea, *been* is never taken pre-inflected from the lexicon but is always the result of affixation to a bare stem.

To review, the basic ellipsis facts presented in Lasnik are repeated below. First, we see that finite main verbs may elide under unmatched inflection.

- (3) a. John slept, and Mary will sleep too.  
 b. John sleeps, and Mary will sleep too.  
 c. John has slept, and Mary will sleep too.  
 d. ?John was sleeping, and Mary will sleep too.

<sup>3</sup>Compare with Chomsky (1993), where it is suggested that *have* and *be* are distinguished from other English main verbs in that they cannot move covertly due to their semantic vacuity, and thus have no alternative in a convergent derivation but to move overtly.

<sup>4</sup>Lasnik suggests the sentence *There is a solution* in connection with this idea, where *is* has the meaning of “exists,” yet acts no different from other instances of *be*.

The suggestion made by Lasnik is that ellipsis is possible because the structures are those shown in (4), where the inflectional affix is separated from the bare verb stem structurally, and thus does not interfere with ellipsis under identity.

- (4) a. John -ed sleep, and Mary will ~~sleep~~ too.  
 b. John -s sleep, and Mary will ~~sleep~~ too.  
 c. John has -en sleep, and Mary will ~~sleep~~ too.  
 d. ?John was -ing sleep, and Mary will ~~sleep~~ too.<sup>5</sup>

Strengthening the point is the fact that *have* and *be* behave differently from main verbs in this respect.

Below, we see that mismatched forms cannot undergo ellipsis:

- (5) a. \*John was here, and Mary will ~~be~~ too.  
 b. \*John is here, and Mary will ~~be~~ too.  
 c. \*John was being obnoxious, and Mary will ~~be~~ too.  
 d. \*John has left, but Mary shouldn't ~~have~~ left.

Lasnik ends his discussion by considering imperatives and present subjunctives in English, which appear to be capable of ellipsis with bare forms without regard to the main/auxiliary verb distinction.

Examples of this are shown in (6), and supporting facts indicating that such verbs do not raise (as indicated by their position with respect to negation) are shown in (7).

- (6) a. I demand that you be civil, and I expect that you will ~~be~~ civil.  
 b. I recommend that you leave, because one of us must ~~leave~~.  
 c. —Leave. —I will not ~~leave~~. I do not want to ~~leave~~.  
 d. —Be quiet. —I will not ~~be~~ quiet. I do not want to ~~be~~ quiet.
- (7) a. I order that you not be returned to society.  
 b. I insist that you not leave yet.  
 c. Do not leave.  
 d. Do not be quiet.

Lasnik suggests that the behavior of the verb forms in (6) and (7) might be explained by supposing that the subjunctive and imperative of *have* and *be* are not preinflected in the lexicon—or that they lack inflected entries. What I would like to suggest<sup>6</sup> is that the forms in (6) and (7) are coming from the lexicon as bare stems not because the lexicon lacks such forms but by more general principles of bare stem insertion. In particular, I suggest that the subjunctive forms involve a null modal<sup>7</sup> which occupies the “initial position” in the “verb string” and that all verbs not in initial position are taken from the lexicon bare. For the imperative, I suggest adopting the alternative proposal suggested by Lasnik, namely that the imperative affix is strictly affixal and is therefore incompatible with a preinflected verb. That the imperative form involves an affix is indicated by the appearance of *do*-support in (7c-d).

<sup>5</sup>It is possible that the attribution of “?” to this sentence may be the result of interpreting it as *John was sleeping, and Mary will be-sleeping too*, which has an identical surface form. See also fn. 8.

<sup>6</sup>Note that these suggestions, and particularly the terminology used to formulate them, presuppose the acceptance of (1) and (2). For this discussion, I will presuppose the Affix Hopping framework, but note that alternative explanations will be considered in later sections.

<sup>7</sup>Citation pending—Emonds? Ross? Who first suggested this?

In support of the idea that non-initial verbs are taken from the lexicon as bare stems, consider the examples in (8), where main verbs and auxiliaries alike appear to be elidable in a variety of non-initial contexts. Notice that, as mentioned earlier, this view implies that *been* is always a product of PF merger of *be* and *-en* since *been* never occurs in initial position, a view which is contrary to that in Lasnik (1994). The ellipsis facts in (8c-d) appear to indicate that this is correct, however, leaving the examples provided by Lasnik as as-yet-unexplained counterexamples.<sup>8</sup>

- (8) a. I had been polite, but John would not ~~be~~ polite.  
 b. I had eaten the cheese, but John would not ~~eat the~~ cheese.  
 c. Peter has been polite, but Mary refuses to ~~be~~ polite.  
 d. Peter has left the country, but Mary refuses to ~~leave the~~ country.  
 e. I will leave once I am told that John has ~~left~~.  
 f. It is likely that I will be arrested if everyone else has ~~been~~ arrested.  
 g. I will eat after everyone else has ~~eaten~~.

One final comment is that we do not have much indication that even identically inflected forms of *be* and *have* can undergo ellipsis. Comparing examples in which identically inflected *be* undergo ellipsis in (9a-b) below with example (9c), in which the forms are mismatched, there seems to be a slight contrast, but the facts in this case are unimpressive. The difficulty in these examples may be attributable to the fact that these sentences could only be formed through a process of TENSE-bar ellipsis, which might be independently ruled out. If so, this is not necessarily relevant evidence either for or against the Affix Hopping approach. It does, however, leave us with no positive examples of the elidability of identically

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<sup>8</sup>The examples given in Lasnik (1994) which were purported to show the pre-inflected nature of *been* and *being* were those given below as (i) and (ii):

- (i) \*The children have been very good here. I wish they would ~~be~~ very good at home  
 (ii) \*John was being obnoxious and Mary will ~~be~~ obnoxious too.

In the case of (i), however, the facts are far from clear. For example, (iii) appears to be a minimally different sentence, yet is fully grammatical (example provided by David Pesetsky, p.c.):

- (iii) The children have been very good here, just as I said they would ~~be~~ very good.

Moreover, it also appears that *been* has trouble eliding with itself in contexts like (i), as shown in (iv). The datum in (iv) has been noticed before in the literature, but with varying interpretations (Baker, Johnson and Roberts (1989) rate similar examples with a “?” and disapprovingly cite Lobeck (1986) for assigning them a “\*” as I do below):

- (iv) \*The children have been very good here. I wish they would have ~~been~~ very good at home.

As for example (ii), this may be the result of a general difficulty in *-ing* ellipsis. Consider the paradigm below in (v):

- (v) a. John was being obnoxious and Mary was ~~being~~ obnoxious too.  
 b. John was eating cheese and Mary was ~~eating~~ cheese too.  
 c. \*John was being obnoxious and Mary will ~~be~~ obnoxious too. (=ii)  
 d. ??\*John was eating cheese and Mary will ~~eat~~ cheese too. (~3d)  
 (cf. ?John was eating cheese and Mary will ~~be~~ eating cheese too.)

Notice that the pattern of behavior in (v) appears to be basically the same for main and auxiliary verbs alike, which defuses the argument regardless of the explanation of the facts. See also section 3.3 below for further speculation on the treatment of progressive forms.

inflected forms (since under the Affix Hopping theory, inflected *have* and *be* always raise to INFL before Spell-Out), only negative examples showing inelidability of mismatched forms.

- (9) a. ??John is annoyed and Tom is ~~annoyed~~ too.  
 b. ??John was annoyed and Tom ~~was annoyed~~ too.  
 c. \*They were annoyed and Tom ~~was annoyed~~ too.

## 2.2. *The Ellipsis Facts—A possible alternative*

Although the ellipsis facts discussed above can be explained by adopting the system in (1) and (2), an alternative approach might be possible under the Attract-F framework. What will be suggested here is that this might be the result of ellipsis holding under “interpretable identity.”

In most “minimalist program” systems, the “initial position in a verb string” that figured prominently in the discussions in the preceding section has a particular status: it is the verb which raises to TENSE. On any of the versions of the theory, this movement happens overtly if this verb is *have* or *be*, and otherwise is assumed to happen covertly in some fashion. In this vocabulary, the generalization from the preceding section might be the following: VP-ellipsis may ignore tense incompatibilities unless one of verbs involved is adjoined to TENSE.

This generalization makes sense if we suppose that ellipsis requires identity of a particular sort, namely interpretable identity. Given the concept of “interpretable features” proposed in Chomsky (1994b), it would seem entirely plausible that tense features would be interpretable for the functional head TENSE, but not interpretable for the verb. Under this view, if these features are present on the verb (which we might assume they are, based on the presence of overt inflection), they are erased when the verb moves to TENSE. In light of this, we might again restate the generalization as the following:

- (10) A form may be deleted only under identity of interpretable features.

A suggestive paraphrase of (10) is that “a form may undergo ellipsis only under LF identity,” which brings up an interesting curiosity about the condition in (10). If we suppose that ellipsis is a PF process, it must be sensitive to identity *modulo* uninterpretable features, some of which may still be present at Spell-Out. Aside from extrasystematic pressures of comprehension, this interdependence between PF and LF is rather mysterious, although we already assume that the computation is sensitive to the

interpretable/uninterpretable distinction insofar as Attract-F only ranges over unchecked, uninterpretable features.<sup>9,10</sup>

If this alternative explanation is correct, it leaves much of the main evidence for the Affix Hopping story somewhat undermined. However, the explanation of the raising behavior of *have* and *be* and the explanation of *do*-support remain unaffected, and they may still constitute adequate grounds to adopt the Affix Hopping framework in some form.

### 2.3. The empirical advantage—*do* support

Lasnik suggests that accepting the system in (1) and (2) gives us an otherwise unavailable explanation for why sentences like (11) are ungrammatical.

(11) \*John not likes Mary.

The difficulties, which Lasnik suggests that Affix Hopping avoids, involve the supposition that the verb must inevitably raise over NEG, either overtly or covertly, which appears to implicate the Head Movement Constraint.<sup>11</sup> Given that the data forces our theory to allow the verb (or its relevant features) to get over NEG, it is not clear what would block (11) in the Attract-F framework. We may have other reasons to doubt the HMC as the correct statement of the generalization it is meant to capture, but the ungrammaticality of Lasnik's example remains unexplained since we nevertheless do not expect the HMC to apply in this situation.

Accepting the Affix Hopping approach, in this case, does appear to be empirically desirable, although this explanation of these facts relies on only part of the Affix Hopping system. In particular, it

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<sup>9</sup>This oddity might be taken as indirect support for views such as those suggested in Pesetsky (1994) in which PF is derived from LF (by pronouncing, in cases which would involve “covert movement” under minimalist approaches, a part of the movement chain other than the head). Although such a notion does not fit seamlessly into the minimalist program frameworks, it is interesting to notice that on such a story, we would *expect* it to be impossible for uninterpretable features to count toward identity, since they would presumably have been erased by LF and thus by PF *a fortiori*. Having mentioned the argument, I leave any further pursuit of this idea for another time, but see also fn. 10 below.

<sup>10</sup>It would also be interesting to see if the generalization in (10) could be extended to sloppy DP ellipsis cases like *I read my book and they did too*, but it would require closer examination than can be given here. In the Attract-F framework, we assume, for reasons having to do with “multiple agreement,” that the nominal arguments have interpretable  $\phi$ -features, and the evidence carries over equally to pronouns; however, given the impossibility of a similar reading of *I read John's book and they did too*, pronouns may be special in some other respect. If we assume that pronouns raise out of the DP (not an unfamiliar idea in the semantics literature) and that the ellipsis process is not sensitive to the tails of chains, we have only the insensitivity to number features to explain. In this regard, it might be useful to distinguish features further, following a suggestion in Chomsky (1994b), as “inherent” and “non-inherent.” Under this view, number features are not inherent to either nominal or verbal elements, although they are interpretable on the nominal elements. The ellipsis generalization might then need to be stated in terms of inherent identity, which would somewhat defuse the argument in fn. 9 above since both inherent and noninherent features must be present at LF if they are interpretable.

<sup>11</sup>Of course, this is under the assumption that *not* is Neg<sup>o</sup> which is not uncontroversial. It may turn out to be true that *not* is actually in SpecNegP, in which case there isn't really an issue of HMC violation here, though in fact, this makes a purely Attract-F story even more difficult.

does not rely on the mechanism for differentiating movement of *have* and *be* from nonmovement of main verbs, but only on the affixal property of tense.

#### 2.4. “Freely affixal” and “Featural” INFL—Unification

Lasnik also suggests that INFL can be freely chosen either as an affix or as a set of features, where compatibility of the verb and INFL is guaranteed by the fact that a mismatch would cause a crash at the interfaces; however, in the context of the Attract-F framework this argument is less clear.

In the case where we have (incorrectly) chosen to include in the numeration a purely featural INFL and a bare (main) verb, Lasnik wishes to show that the verb will not raise to TENSE and thereby leave an uninterpretable feature unchecked, crashing the derivation. For this argument to work, we must assume that the verb does not move to TENSE in order to check an uninterpretable V feature of TENSE (since the categorial feature V will be present on the verb whether it is “bare” or preinflected, by virtue of its interpretability), but that the verb instead moves to TENSE to check uninterpretable tense features either on TENSE or on the verb. Notice, though, that it is unlikely that we will want to suppose such features are on the verb as it runs counter to the intuition of what it means to be “pulled bare” from the lexicon, yet it is also somewhat nonsensical to say the tense features are uninterpretable on TENSE, since this renders TENSE very nearly functionless.

The difficulty is centered on two facts. The first is that tense features must be interpretable on either the verb or on TENSE, and by virtue of being interpretable need not be checked in the course of the derivation. The second fact is that verbs bare or preinflected are not differentiated in their interpretable categorial V feature, meaning that if we suppose that TENSE has an uninterpretable V feature, bare forms would be as capable of checking that feature as preinflected verbs.

A further complication comes about if we follow Chomsky (1994b) in supposing that the forced overt subject raising (“EPP”) is caused by an uninterpretable D feature of TENSE, since we must then assume that this feature is present in both featural and affixal INFL, given that we have obligatory subject effects in either case. This combined with the preceding discussion which suggested that it is only uninterpretable tense features on preinflected verbs that drive movement to TENSE, makes the distinction between affixal and featural INFL increasingly fuzzy. Both have an uninterpretable D feature, neither directly causes verb raising, and in any situation in which affixal INFL is stranded, it is simply pronounced as inflected *do*.

A simpler view would be to reject (1) in favor of a uniform INFL which has interpretable tense features and an uninterpretable D feature, and which comes through PF merger as an affix if near a host or as *do* if not. In this view, TENSE can check uninterpretable tense features on verbs if present, allowing the four cases discussed in Lasnik (1994) to be reduced to the two cases of a bare verb and a preinflected verb. Thus, the issue of “incompatible choice” does not arise. Notice also that this conception of TENSE, where tense features are interpretable on TENSE, is fully compatible with the story of ellipsis given in section 2.2.

### 2.5. *Noncomplications of Objective Case checking*

Accepting the Affix Hopping system causes fairly direct complications in minimalist frameworks prior to Attract-F because objective Case checking is assumed to require movement of the object to SPECAGROP, even in languages where there is no overt reflex, and this further requires that the verb move in order to make the object accessible (via “equidistance”) to movement into AGROP. Accepting Affix Hopping implies that the verb does not need to move, which would then be expected to “freeze” the object in its VP-internal position, causing all derivations involving transitive verbs to crash.

In the Appendix to his paper, Lasnik briefly discusses this issue, suggesting that the verb, despite coming from the lexicon as a bare stem and without features to check overtly, would nevertheless raise to AGRO by LF (perhaps to check some features which are “ignored for ellipsis,” perhaps for an unspecified reason tied to a distinction between AGRO and AGRS), but this is rather clearly an unwelcome addition to the system.

Fortunately, this difficulty may be avoided if Chomsky (1994b) is correct in supposing that AGR projections only exist where they are strong, since in English (the only case at issue) we are led to assume that AGRO does not exist and that any uninterpretable features of the object need raise only to the verb to be checked. This is interesting, since it derails one of the larger threats posed by the Affix Hopping system to minimalist syntactic frameworks.

### 2.6. *Summary of the modifications and clarifications*

I have suggested above a few amendments and clarifications to a system in which Affix Hopping is assumed, which I summarize below.

- (12) a. Tense features are interpretable on TENSE, and uninterpretable on the verb.
- b. TENSE (in English) uniformly has a strong uninterpretable D feature (EPP) and interpretable Tense features.
- c. A verb preinflected in the lexicon is a verb which has uninterpretable tense features, which motivate the movement to TENSE.
- d. TENSE, when nonadjacent to a verb at PF, is realized as *do*, otherwise as inflection on the verb through PF merger.

This view also forces a restatement of the suppositions in (2), which are given below in (13).

- (13) a. English: Auxiliaries come from the lexicon preinflected, main verbs do not come from the lexicon preinflected. Tense features are strong on preinflected verbs.
- b. French: All verbs come from the lexicon preinflected. Tense features are strong on preinflected verbs.
- c. Swedish: All verbs come from the lexicon preinflected. Tense features are weak on preinflected verbs.<sup>12</sup>

<sup>12</sup>Jonathan Bobaljik (p.c.) suggests that Swedish might be more correctly characterized as having an adverbial negation element, which thereby does not disrupt adjacency for the purposes of PF Merger, and

Notice that this brings out a significant difference between the assumptions here and the assumptions under other minimalist program frameworks, namely that the strong features which cause verb movement are a property of the verbs and not a property of the INFL elements. This property, at least in English, seems plausible to the extent that it derives the effect (discussed in section 2.1) that verbs which do not move to INFL appear without overt inflection; if the numeration were chosen otherwise, the derivation could not converge, since there would remain unchecked strong features on these lower verbs which would not be subject to an Attract operation due to the closer intervening verb(s). This argument works if we suppose cyclicity holds of overt operations, since, if TENSE is the target of the Attract operation, only the uppermost verb will host the closest unchecked tense features, yet once that feature has moved, movement of the lower verbs is prohibited by virtue of being countercyclic, but required for convergence by virtue of having strong tense features.<sup>13</sup> This also relies on another plausible assumption, namely that the unchecked tense features of lower verbs in the verb string cannot check against unchecked tense features of other verbs in the verb string, but only with the tense features of TENSE. Whether these properties hold up under crosslinguistic examination, however, remains to be seen. The prediction would be that languages which have strings of auxiliaries like English would also, like English, only show tense marking on the first of them.<sup>14</sup>

### **III. Some Future Directions**

#### ***3.1. Implications for Language Universals?***

One of the most striking things about the proposal made in (2) is that it would appear to be an astronomically improbable coincidence that only two English verbs (*have* and *be*) are drawn from the lexicon in preinflected form, like every verb in French and Swedish, but unlike every other English verb. It is unlikely that this could be purely coincidental, particularly in light of the fact that *go*, a highly suppletive, irregular, and frequent English word has nevertheless failed to enter the English vocabulary as preinflected.

One natural assumption we might make, faced with such facts, is to suppose that the copula is unique in language in its universally preinflected nature, perhaps only one of a number of ways in which

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thus all verbs can come from the lexicon as bare stems. This has the potential advantage of obviating the need for a strong/weak distinction in the Tense features, but I leave this avenue unexplored. See also Bobaljik (1994) for aspects of this analysis.

<sup>13</sup>This leaves unexplained the impossibility of choosing to pull the first of a series of verbs from the lexicon as a bare stem, allowing the first verb chosen preinflected to raise to TENSE, as pointed out to me by David Pesetsky (p.c.). I will have to leave this as an open question at present.

<sup>14</sup>An immediate counterexample to this generalization might appear to be provided by the complex past tense forms in Romance languages like French. It appears that, in light of examples like *J'ai parlé à...* ("I spoke to...," literally "I have speak[past] to"), we are forced to analyze these constructions as a close analog to the English *I have spoken* past participles, possibly involving an analog to the English *-en* affix as well. The facts are further complicated by issues of auxiliary selection, which affects the appearance of certain subject agreement on the past participle. This would seem to be a good place to begin testing the plausibility of the assumptions behind the Affix Hopping approach, although such explorations will not be possible in the present paper.

the copula might differ from verbs generally.<sup>15</sup> This implies that either *have* somehow falls into the same class as the copula, or more naturally that Kayne (1993), following Freeze (1992), is correct in supposing that *have* is actually *be* with an additional incorporated element.

Another candidate for language universality is the characteristic discussed previously that all verbs which occupy positions non-initial in a verb string are taken from the lexicon in bare form. Because we seem to be at least partially able to derive this result for English from the assumptions about the computational system, it would be theoretically pleasant to be able to locate this behavior crosslinguistically.

Clearly, there is a research program here—namely to ascertain if these properties either hold (where detectable) in all languages or correlate crosslinguistically with other properties shared with English. Of course, I cannot begin to give an answer here, but it is clearly a relevant question for future research if the Affix Hopping approach is adopted.

### 3.2. *Typological distinctions*

If we accept the basic Affix Hopping system, we are led to expect that the parameters of typological variation between languages will need to be adjusted from those assumed in work within the Minimalist Program. While most such work has assumed that much typological variation can be derived from the strength of four features (the N and V features of TENSE and AGR), the introduction of the possibility of bare/inflected verbs introduces another degree of freedom. However, it is also true that the difference between French and English, formerly associated with the strength of the V feature of AGR, would under an Affix Hopping approach be located on the morphological shape of the verbs as they come out of the lexicon. We might suppose that this will allow us to reduce the number of features whose strength we need to specify as a language-particular parameter.

A typological survey is beyond the scope of this paper, but this presents another direction for future research if we adopt the Affix Hopping approach.

### 3.3. *The Behavior of Stranded Affixes and Affix Location*

Another point of interest in the Affix Hopping story is the fact that English deals with “stranded affixes” in differing ways. Lasnik provides evidence that *-ing* affixes cannot be stranded in a grammatical sentences, as shown below:<sup>16</sup>

- (14) a. \*John slept, and Mary was ~~sleeping~~ too  
 b. \*John -ed sleep, and Mary was -ing ~~sleep~~ too (=11a)

<sup>15</sup>Note that if the analysis suggested by Jonathan Bobaljik for Swedish (cited in an earlier footnote) is correct, this generalization does not hold up, since Swedish auxiliaries would be analyzed as bare stems.

<sup>16</sup>Note that this is the converse of the situation in (v) of fn. 8. Presumably, these two facts are related.

Yet not all affixes behave this way; the story of *do*-support which Lasnik hints at and which is assumed here is that a stranded *-ed* affix (tense) is simply spelled out as an inflected form of *do*. A third distinct behavior is exhibited by the *-en* affix, which appears to be freely strandable,<sup>17</sup> as in the examples below.

- (15) a. John may be questioning our motives, but Peter hasn't ~~been questioning~~  
~~our motives~~.  
 b. I am afraid to be polite, but Peter could have ~~been polite~~.  
 c. I suggest you be polite, since Peter has ~~been polite~~.

Given the differing behaviors exhibited by these affixes, it is possible that we should consider the *-en* and *-ed* affixes as a different sort of entity from *-ing*. Notice also the correlation between the crashing effects and the degree of phonological affectedness of the verbs in question: *-ing* verbs are completely regular in English and will crash a derivation if stranded, while both *-en* and *-ed* may induce dramatic (even entirely suppletive) changes in the verb stems and both can be stranded without crashing.

One possible explanation is simply that the progressive feature is interpretable on the verb and that *-ing* forms are pulled from the lexicon with *-ing* already attached. However, such an explanation weakens the concept of being pulled “bare” from the lexicon.

A more attractive possibility is that *-ing* heads its own functional projection which takes a VP as its complement,<sup>18</sup> coming in with a strong feature (perhaps a V feature) that forces the verb to move up overtly. If this were the case, *-ing* differs from *-en* and *-ed* in that it is a process of incorporation rather than PF merger, which might explain the difference in phonological affectedness if we suppose that PF merger has more liberty than incorporation to effect strong phonological changes. This story might also explain the inability to elide progressive forms as well (as shown in (14) and in (v) of fn. 8), since the verb will be forced to incorporate with *-ing* prior to Spell-Out and will therefore no longer be structurally identical to a nonprogressive verb. Notice that it is possible to elide two progressive forms, where under these assumptions they would once again be structurally identical.

- (16) a. John was eating and Mary was ~~eating~~ too.  
 b. John had been eating and soon Mary would be ~~eating~~ too.  
 c. John is eating, just as Mary has been ~~eating~~.

As for the other affixes, we already suppose that *-ed* is located in TENSE, but we don't yet have any strong reasons for placing *-en* at any particular point in the syntactic structure. We do know, however, that under the Affix Hopping approach (and indeed under the Attract-F approach for the most part), very

<sup>17</sup>Perhaps, as Lasnik tentatively suggests in a footnote, *-en* can be stranded as a result of having a “stranded spelling” of “Ø,” on a par with *do* as a stranded spelling of the tense affix.

<sup>18</sup>A very similar suggestion is also made by Watanabe (1993) ch. 4.

little moves in the (English) VP before Spell-Out, so the order of the affixes on the surface is very likely to be the order of the affixes underlyingly and the structures must be set up accordingly.

- (17) a. John was eaten by a boa constrictor      J was -en eat by a b.c.  
 b. John is being eaten by a boa constrictor      J is -ing be -en eat by a b.c.  
 c. John has been eaten by a boa constrictor      J has -en be -en eat by a b.c.

Additionally, it is probably important to tie together the past perfect *-en* forms and the passive *-en* forms, since they appear to be related crosslinguistically as well as in English. The ideal way to do this would be to suppose that the *-en* affix is the same affix in both cases, which will further constrain the possible syntactic locations and properties of this affix.

One possible starting point, for example, would be to attempt to update the analysis of the passive construction in Baker, Johnson, and Roberts (1989), which appears to predict correct surface orderings. There, the proposal was that the *-en* morpheme was actually occupying a subject position, and was capable of accepting the theta role normally assigned to the subject. This approach brings about several complications, among them the category status of *-en*, given that it is not recruited for the EPP (thus presumably is not a DP) yet is still capable of accepting a theta-role (which we might expect only nominal elements can do), as well as considerations of crosslinguistic incompatibilities brought up in Watanabe (1993, ch. 4) with respect to other types of passive constructions and causatives. Note, though, that the theory of passive which is presented in Watanabe (1993) does not seem to provide an appropriate location for the *-en* affix to yield the correct ordering. Clearly, there are many issues here for future research.

#### **IV. Concluding remarks**

The preceding discussions clearly only scratch the surface of issues which must be considered in depth if we wish to adopt the Affix Hopping proposal. By adopting it, we avoid some uncomfortable statements about the effect of the semantic content (or lack thereof) of *have* and *be* on the syntactic derivation, and we have a reasonable account for English *do*-support and the overt movement of auxiliaries but not main verbs. If we choose not to adopt the proposal, these issues remain open and troublesome, despite the fact that the ellipsis facts might have an alternative explanation in terms of interpretable identity.

What remains to be determined, as always, is whether by introducing the distinction between bare and inflected verbs we have introduced complications greater than those which are required to explain the facts without the distinction.

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