



On the Independence and Interdependence of Syntactic and Morphological Properties: English Aspectual Come and Go

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ON THE INDEPENDENCE AND
INTERDEPENDENCE OF SYNTACTIC
AND MORPHOLOGICAL PROPERTIES:
ENGLISH ASPECTUAL *COME* AND *GO**

The English verbs *come* and *go* in the 'aspectual' use exhibit a curious restriction: they may not appear in any overtly inflected form. We argue that this inflectional restriction is due to syntactic and thematic considerations which are independent of word formation, supporting the claim that the basic properties of inflectional morphology are to be analyzed by making reference to the syntax proper. Our analysis has implications for several other topics, including the structure of INFL, the mechanisms involved in affix lowering, the ban on unbound affixes, the LF properties of primary vs. secondary θ -role assigners, and the role played by pleonastic *do*.

0. PRELIMINARY REMARKS

The analysis of verbal inflection has played an important role in the development of generative grammatical theory since its inception (cf. Chomsky 1955, 1957). Recent proposals in the Principles and Parameters framework of generative grammar have introduced new ideas which attempt to provide real explanations for certain long-standing problems and puzzles in this area. In this paper, we will consider certain puzzling facts associated with a particular 'aspectual' use of the English verbs *come* and *go*, illustrated by the sentences in (1) below:¹

- (1)a. Come talk to me.
b. Go climb a rock.

[†] The Editors note with great sorrow the death of Osvaldo Jaeggli on August 20, 1990.

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¹ All of these sentences are acceptable in American English. We have been told by several speakers of British English, however, that all of these are at best marginal, if not totally unacceptable, in their dialect, with imperatives as in (1a,b) being slightly better than declaratives (1c-e). These differences may be related to other well-known differences between American English and British English concerning the auxiliary system; in particular, differences concerning pleonastic *do*. We leave these issues open for future research.

- c. He will go talk to his advisor today.
- d. Whenever I/you have time, I/you go watch a movie.
- e. Whenever I need some advice, I come talk to you.

We will show that the range of facts associated with *come* and *go*, which have not received a satisfactory analysis in previous frameworks, follow nicely from recent proposals concerning INFL and the syntax of verb movement. The analysis we propose has interesting consequences for several topics, including the structure of INFL, the precise mechanisms involved in affix lowering, the ban on unbound affixes, and in particular, the role played by pleonastic *do* in English.

A fundamental insight of linguistic theory is the notion of linguistic level of representation. Assuming that an adequate account of linguistic structure involves several different levels of representation, fundamental questions arise concerning the number of distinct levels, the properties of each, and their interrelations. Specifically, how do properties of one level of representation affect the properties and processes of another level? The data reviewed in this paper constitute strong evidence that certain inflectional morphological properties associated with aspectual *come/go* cannot be analyzed adequately by making reference to principles of word structure, i.e. what is traditionally called 'morphology', but rather must involve the interaction of purely syntactic operations, such as adjunction and substitution, and syntactic principles, such as the ECP, barriers, and the lexical/nonlexical categorial distinction. In this sense, then, inflectional morphology and syntax are strongly *interdependent*. On the other hand, we show that the proper functioning of the relevant syntactic principles is independent of purely morphological properties, such as the property of being a bound morpheme. Such properties, we claim, play a role only at the morphological level of representation, and do not have consequences for the syntax. In other words, syntax is blind with respect to such properties. Just as it has been widely assumed since Chomsky (1965) that purely semantic features cannot influence the operation of syntactic rules, we wish to claim that the same is true of purely morphological properties, as made explicit by Emonds (1985). In this sense, then, syntax and morphology are *independent* of each other.

We begin by outlining some recent proposals concerning the structure of sentential projections and the syntax of verb movement. In section 1, we discuss the core *come* and *go* facts. In section 2, we discuss two analytical possibilities which we reject, and finally, in section 3, we present our analysis.

In essence, we propose that the attachment of affixes to non-affixes in

the verbal inflectional system is driven by properties that distinguish 0- from non-0-affixes: only the latter motivate syntactic movement. On the other hand, the insertion of *do*, traditionally motivated as a means of saving non-attached affixes, is here motivated by an entirely different factor: the need to lexicalize tense. Constructions with aspectual *come* and *go* allow us to pry these two factors apart. We will see that the constructions in (1) are restricted to clauses in which tense and agreement are phonologically null. The impossibility of overt inflection will be explained as a conflict between the fact that *come/go* assign a 'secondary θ -role' and the consequences of affixing overt morphology to these verbs. At the same time, the inability of *do*-support to save these structures will argue for our separation of affixal requirements from the principles governing *do*.

As a point of departure, let us briefly consider the X-bar status of sentential projections. It is now widely accepted (following Hale 1978, Stowell 1981, and Chomsky 1981) that S is the maximal projection of the node which contains Tense, Auxiliaries, etc., namely 'INFL' (formerly 'AUX'). S is then INFLP (IP). This node has been considered one constituent with two (or perhaps more) sets of different features, e.g. [\pm Tense], [\pm Agr], [\pm Aspect], [\pm Neg]. However, several recent studies suggest that this picture is not completely satisfactory (cf. Pollock 1989, Tenny 1987, Kayne 1987, Chomsky 1991, Johnson 1988, among others). Rather, it has been argued that each one of these sets of features should be considered the head of a maximal projection, i.e. AGR(ement)P, T(ense)P, NEG(ment)P, etc. The precise ordering of these projections, perhaps subject to cross-linguistic variation, is a matter of considerable debate, which we discuss below.

These different heads may (and in certain instances must) surface on the verb. Standard accounts propose that this can be accomplished via the operation of (one of) two rules:

1. head-to-head movement of the verb from its initial position in VP to some other head position containing the affix, i.e. verb raising; or
2. downward movement of the functional category to the verbal element, i.e. affix lowering (e.g. the Affix Hopping rule of Chomsky 1957).

The first option has been shown to play a crucial role in the analysis of several other constructions which involve verb movements (cf. Koopman 1984, Baker 1988, Pollock 1989, and references cited in these works). Such movements are constrained by the Head Movement Constraint

(Travis 1984; Chomsky 1986a).² This constraint itself has been argued to follow from certain versions of the Empty Category Principle (Baker 1988), a principle of Universal Grammar. Pollock (1989) argues further that verb raising to INFL is sensitive to one abstract parameter having to do with “the ‘opacity’ or ‘transparency’ of Agr(eement)”. The English setting of this parameter only allows verbs which do not assign θ -roles to raise. If a verb which must assign a θ -role raises, the structure is ruled out by thematic considerations. In this way, yet another principle of Universal Grammar is implicated in the syntax of verb movement.

In the next section, we present the basic facts associated with aspectual *come* and *go*.

1. ASPECTUAL *come/go*

As illustrated by the sentences in (1) above, the verbs *come* and *go* may be followed by another ‘bare’ form of a verb. In this use, which we have labeled *aspectual*, these verbs exhibit a curious restriction on inflectional markers. They may not appear in any inflected form. Present tense third person singular *-s*, past tense markers, participial forms, and gerundive forms are all excluded:³

- (2)a. *John goes talk to his advisor every day.
- b. *Mary comes talk to me whenever she has a problem.
- c. *I/you came talk to him yesterday.
- d. *He went eat at that restaurant yesterday.

² The Head Movement Constraint is stated as follows: “Movement of a zero-level category β is restricted to the position of a head α that governs the maximal projection δ of β , where α θ -governs or L-marks δ if $\alpha \neq C$ ” (Chomsky 1986a, p. 71). See also Baker (1988) for relevant discussion.

³ Many of these facts are also reported in Perlmutter (1971), Carden and Pesetsky (1979), Pullum (1990), and Shopen (1971). Shopen points out that some speakers accept other verbs as well in this aspectual use, e.g. *Run/hurry hide in the woods*, *Stay watch the sunset with us*, *Try finish your homework by 10 o'clock tonight*. We have found, however, that while most speakers accept sentences as in (1) with *come/go*, very few speakers generalize this construction to many more lexical items. These facts are also briefly mentioned in Emonds (1985, p. 174).

- e. *I have never gone eat at that restaurant.⁴
 f. *I am going see(ing) a film.

Notice that these restrictions hold only if the relevant inflectional markers must surface on *come* and *go*. *Do*-support, when possible, 'saves' some of these sentences by allowing the relevant inflectional markers to appear on pleonastic *do*:

- (3)a. Does John go talk to his advisor every day?
 b. John does too go talk to his advisor every day!
 c. I did not come talk to you yesterday.
 d. Didn't he go eat there yesterday?

Notice equally that there is no ban on third person subjects per se. This is already evident in (1c), and the sentences in (3) also make this clear. Strikingly, even subjunctive third person singular forms are allowed, which

⁴ It is interesting to note that even though the past participle of *come* is homophonous with its base form, i.e. *come + en = come*, it is still not acceptable in this construction. Consider the following contrast from Shopen (1971): *They often come sleep at our house* vs. **They have often come sleep at our house*. This indicates that the ban on inflection is not a fact about the phonological form of the word, but rather a true syntactic restriction on aspectual *come/go*.

Although we do not share the intuition, some speakers (cf. Carden and Pesetsky 1979, Pullum 1990) detect an improvement in the participle construction when the second verb is a participle which is phonologically identical with its base form, as in (i).

- (i) Bill has come put a copy of his new paper on my disk.

To the extent that there is an improvement, we suspect that the sentence in (i) is derived from the already reduced coordinate structure (ii).

- (ii) Bill has come 'n' put a copy of his newspaper on my desk.

A well-known general restriction that the verbs in a coordinate structure must be in the same tense/aspect, as illustrated in (iii) and (iv).

- (iii) John danced and sang/has danced and sang/is dancing and singing/etc.
 (iv) ??John danced and is singing/danced and has sung/is dancing and sang/sung.

This would explain why the sentence in (i), in which *put* is a participle, is better for some speakers than Shopen's original sentence (v), in which this coordination constraint has been violated.

- (v) *They have often come sleep at our house.

If this is the case, then the sentence in (vi) should also be better than (v), even though the participle in this case is not phonologically identical to the base form.

- (vi) Bill has come slept at our house.

Although our intuitions are quite murky on this point, it seems to us that there is an improvement in this direction.

do not carry the *-s* morphology typical of present tense indicative third person singular. Consider the following examples:

- (4)a. The police insist that Bill go talk to the counselor once a week.
- b. I requested that she come discuss this problem with me in person.

The restriction on inflection which we have been discussing recalls behavior typical of modal verbs in English. However, aspectual *come* and *go* differ from modals in many important respects. First, *come* and *go* may appear in subjunctive complements, as illustrated by the sentences in (4), while modals may not, as (5a) shows. Second, *come* and *go* may freely co-occur with modals (cf. (5b,c) versus (5d)), and there is no restriction against infinitival forms as there is with modals (cf. (6a-c) versus (6d)).

- (5)a. *I require that he can be there by 3.
- b. I will go read a book.
- c. She may come talk to you about this.
- d. *I will can read a book.

- (6)a. I want to go see that movie.
- b. It's important for you to go talk to him about this.
- c. For you to come talk to me about this is outrageous!
- d. *I want to can see that movie

Furthermore, aspectual *come* and *go* must delete under VP-deletion, as in (7a,b), and they prepose under VP-fronting, as in (8a,b), contrary to what occurs with modals (cf. (9)).

- (7)a. (Whenever the opportunity arises), I go watch a movie, and you do/*go, too.
- b. I come talk to my advisor every week and you do/*come, too.
- (8)a. Mary wanted to go join the Army, and go join the Army she did.
- b. John arranged to come fix the roof and come fix the roof he did.
- (9)a. John may be late for the appointment and Mary may too.
- b. *Mary said that she would write and would write she did.

Unlike the modals and (auxiliary) *have/be*, aspectual *come/go* fail to undergo Subject-AUX Inversion, and they cannot be followed by the

negative marker or by emphatic markers such as *too/so*. These facts are illustrated in (10):

- (10)a. *Go you see a movie every day?
(cf. May I go see a movie?)
b. *I come not talk to my advisor as often as I should.
(cf. I should not talk to my advisor at this point.)
c. *I come too/so talk to my advisor every day.
(cf. I will too/so talk to my advisor every day).

Finally, aspectual *come/go* differ from (both auxiliary and main verb) *have/be* with respect to the position of adverbs like *seldom*, *often*, etc. Consider the following sentences:

- (11)a. I have seldom mentioned that matter to him.
b. I have seldom any money.
(12)a. I seldom/often go talk to my advisor.
b. I seldom/often come discuss this issue with you.
c. *I go seldom/often talk to my advisor.
d. *I come seldom/often discuss this issue with you.

This completes our description of most of the central facts associated with the aspectual *come/go* construction. We turn next to the task of providing an analysis of these facts. We first consider the possibility of an infinitival or coordinate source for *come/go*.

2. AGAINST AN INFINITIVAL OR COORDINATE SOURCE FOR *come/go*

One kind of analysis which comes immediately to mind is to derive aspectual *come* and *go* sentences from either the '*come/go-to-V(erb)*' construction as in (13a) or from a 'coordinate verb' construction, as in (13b).

- (13)a. The children go to visit the dentist every year ⇒
The children go visit the dentist every year.
b. They go and visit the dentist every year ⇒
They go visit the dentist every year.

However, as Shopen (1971) points out, neither of these proposals is descriptively adequate. The first is rendered questionable because sentences with aspectual *go/come* have different truth conditions than '*go/come-to-V*' sentences. Consider the sentences in (14).

- (14)a. They go to buy vegetables every day, but there never are any vegetables.
 b. They go buy vegetables every day, but there never are any vegetables.

They go buy vegetables asserts that a purchase has taken place, while *They go to buy vegetables* does not. Thus, as Shopen notes, the sentence in (14b) is a contradiction, while the sentence in (14a) is not. The contrast indicates that in (14a) *go* is the main predicate of the sentence, while in (14b) *buy* fulfills this function. This fundamental difference in structure disallows any derivation connecting one to the other.

The 'coordinate verb' analysis is also problematic. Shopen points out that in coordinate structures, verbs cannot stack the way they can in aspectual *come/go* sentences.⁵

- (15)a. Come go eat with us!
 b. *Come and go and eat with us!
- (16)a. Come go sit have a drink with us!
 b. *Come and go and sit and have a drink with us!

Furthermore, the coordination construction allows all sorts of verbs, as in (17), while the aspectual construction is severely restricted, allowing only *come/go* (and perhaps a few other lexical items, with much idiolectal variation attested here; see note 3.⁶

- (17)a. Eat and drink and be merry!
 b. *Eat drink be merry!

Finally, the restriction on inflection noticed above for aspectual *come* and *go* is not present in either of the two proposed source structures:

⁵ This observation is attributed in Shopen's note to Charles Bird.

⁶ Carden and Pesetsky (1979) note two constructions which seem to behave like *come/go* with respect to the ban on inflection, but which contain *and*. They are *be sure 'n' (and)* and *try 'n' (and)*, as in the following examples:

- (i) I will try 'n' do it by tomorrow.
 (ii) I will be sure 'n' remember what he does with the money.
 (iii) *I tried 'n' do (did) it.
 (iv) *John is sure 'n' do (does) it.

We agree with Carden and Pesetsky's conclusion that *and* in these cases is not a true conjunction, and that these structures are not derived from an underlying coordinate construction. Rather, we assume that 'n' is a quasi-affix introducing the second VP. Under this assumption these cases can be assimilated to our analysis of *come/go*, though we will not attempt to do so here. David Pesetsky (personal communication) points out that the agency restriction to be discussed below extends to the *try 'n'* and *be sure 'n'* constructions.

- (18)a. He came to talk to you yesterday.
 b. He came and left immediately.
- (19)a. She comes to see him everyday.
 b. She comes and sees him everyday.

While these differences between the ‘*come/go-toV*’ and ‘coordinate verb’ constructions versus the aspectual *come/go* construction could have been accommodated within a very powerful theory of transformational deletion – one which allows us to restrict the application of the ‘*to/and* deletion rule’ to certain specific lexical structures – such an analysis (which, even if descriptively adequate, is in any case completely unsatisfactory from an explanatory point of view) is no longer available under current transformational theory.

Another important difference between the aspectual construction and the other two constructions concerns selectional restrictions imposed on the subject NP. While the main verbs *come* and *go* ordinarily allow either an agentive or a non-agentive interpretation for the subject NP, aspectual *come/go* require the agentive interpretation. Consider the following contrasts (from Shopen 1971):

- (20)a. Pieces of driftwood come and wash up on the shore.
 b. *Pieces of driftwood come wash up on the shore.
 c. Our sewage might go and pollute the town water supply.
 d. *Our sewage might go pollute the town water supply.
 e. The smoke fumes go and inebriate the people upstairs.
 f. *The smoke fumes go inebriate the people upstairs.

Sentences (20a,c,e) are acceptable because in those instances *come/go* are main verbs, and as such they do not impose selectional restrictions on their subjects. Aspectual *come/go*, on the other hand, do impose selectional restrictions on their subjects. They must be capable of an agentive interpretation. Since the subjects in (20b,d,f) cannot satisfy this requirement, the sentences are unacceptable. The same phenomenon can be observed with main verbs like *roll*, which by themselves typically allow a non-agentive interpretation for their subjects. With aspectual *come/go*, on the other hand, only an agentive interpretation is possible.

- (21)a. Go roll down that hill!
 b. Big boulders roll down this hill every time there is an earthquake.
 c. *Big boulders come roll down this hill every time there is an earthquake.

Stative verbs embedded under *come/go* yield equally odd results (cf. (22a,b)), given the implausibility of an agentive interpretation for the subject NP. Passives embedded under *come/go* are acceptable only if it is possible to ascribe some agentive intentionality to the derived subjects, as in (22c,d).

- (22)a. *Come know the answer to this problem.
 b. *Go be tall.
 c. Let's go be arrested by the police at that demonstration.
 d. Let's go be introduced to that famous person.

Finally, as pointed out to us by Ian Roberts (personal communication), psych verbs, which are normally ambiguous between an agentive and a non-agentive interpretation, have only the agentive interpretation when used with *come/go*. Thus, the sentence in (23a) can mean either that my children intentionally bother Mary or that my children are the cause of Mary's bother, e.g. by fighting with each other. With *come/go*, however, the ambiguity disappears: (23b) has only the intentional reading.⁷

- (23)a. My children bother Mary.
 b. My children go bother Mary.

This thematic property of aspectual *come/go* will figure prominently in our explanation for the array of facts associated with this construction. We turn to this directly.

⁷ Baker (1989) has suggested that aspectual *come/go* may be a serial verb construction (SVC), similar to that found in the Kwa languages (West Africa), exemplified in (i), though as Baker notes, the construction is extremely limited in English. (Baker attributes the example to Lord (1974).) Pullum (1990) also proposes that *come/go* is a "quasi-serial" verb construction

- (i) Bólá sè eran tà
 Bola cook meat sell
 Bola cooked some meat and sold it

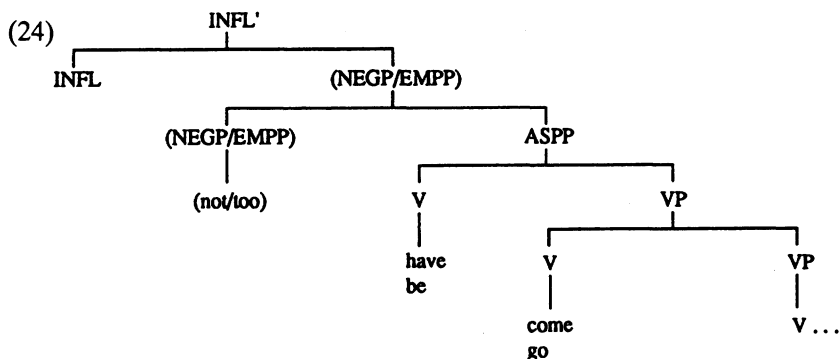
In the SVC a sequence of verbs appears in what is apparently a single clause with a single structural subject. In this regard, *come/go* are serial-like. However, Baker observes that the crucial property of the SVC is that the verbs share a common object. Thus, in (i) the verb 'sell' has no object of its own even though it is lexically transitive. Using the shared object property as a diagnostic, we can test the hypothesis that *come/go* are serial verbs. Because *come/go* are intransitive, the relevant test sentences must be constructed with prepositional objects. As the following examples illustrate, the verbs in the *come/go* construction cannot share a common (prepositional) object, arguing against a serial verb analysis of this construction

- (ii) *I will go with my son travel to Europe.
 (iii) *I will go to my advisor talk to about my dissertation.

3. A VERB RAISING/AFFIX LOWERING ACCOUNT

In this section, we provide an analysis of the *come/go* facts which involves the syntactic processes of verb raising and affix lowering. First, however, we discuss the position of these elements relative to other functional heads.

Since *come/go* neither head the main VP nor are generated in the position occupied by modals (TENSE, or more generally, INFL), we will assume they are generated in a position between auxiliary *have/be* and the main VP; that is, *come/go* head a phrase which selects a VP complement. This phrase might be labeled 'Aspect Phrase', i.e., the maximal projection of an aspectual head (as, for example, Tenny (1987) does for *have/be*). However, we will simply assume that *come/go* head a VP which takes a VP as complement. We further assume that the negative morpheme *not* (as well as the emphatic morpheme *too*) heads a phrase which is external to the Aspect Phrase (ASPP). This gives us the following partial structure:⁸



This structure derives some of the co-occurrence restrictions discussed above. First, since modals are generated under INFL in (24), it follows from this structure that aspectual *come/go* may co-occur with (and follow) modals, just like *have/be*, illustrated in (5b,c). Equally, if infinitival *to* occurs under ([-finite]) INFL,⁹ it may appear with *come/go*, as shown in

⁸ A similar structure is suggested in Tenny (1987). In order to allow for *John has been spying on Mary* we need to assume also that ASP may take another ASPP headed by *be* as its complement, as in the structure: ... [ASPP *have* [ASPP *been* [VP *spying* ...]]] ... To simplify the discussion we show a single projection of *have/be* in the structures like (24) in the text.

In order to obtain Pollock's (1989) results concerning adverb placement in French and English, we must reinterpret his 'VP-initial' adverbs more generally as 'ASPP-initial' adverbs. Sentences (11) and (12) in the text require the same assumption. The matter is largely terminological, especially if 'ASPP' is just a label which reduces to VP, as suggested above.

⁹ The exact placement of the infinitival marker *to* raises questions which go beyond the scope of this paper.

(6a–c), as it may with *have/be* (though it may not occur with the modals). For the present we will assume that the progressive and perfective forms of aspectual *come/go* (cf. (2e,f)) are blocked by the selectional restrictions of auxiliary *have/be*, which require a main VP complement.¹⁰

We still need to explain the general ban on inflection that we see with aspectual *come/go* (cf. (2a–d)). To anticipate that discussion somewhat, we make the now standard assumption that there are two mechanisms of affixation, verb raising and affix lowering. Thus, if *come/go* fail to raise and if affix lowering is also blocked, these verbs will fail to inflect. This is the core of our analysis of the inflectional facts associated with aspectual *come/go*. In the sections that follow, we elucidate the mechanisms by which this ban on inflection is accomplished. Specifically, we consider the following issues:

- (I) How do *come/go* behave with respect to the verb raising process discussed in Emonds (1976), Pollock (1989), etc.? How is this behavior accounted for?
- (II) Why is affix lowering not allowed to apply with aspectual *come/go*?
- (III) Why does pleonastic *do* appear with aspectual *come/go*, but not with auxiliary *have/be* in negative, emphatic and SAI contexts, and why does it fail to 'save' declarative *come/go* structures?

A satisfactory analysis of the *come/go* construction must provide explanatory answers to these three questions. Our account relies crucially on separating the contributions of the syntax from those of the morphology, and on the proper articulation of these levels of linguistic description. Our answer to question (I) provides further motivation for the insight of Roberts (1983) and Pollock (1989) that the relevant property affecting verb raising (in English) is θ -theoretic and not categorial. Question (III) also receives a purely syntactic analysis, stripping away morphological factors which have long been held to be responsible for the appearance of pleonastic *do*. Our answer to question (II) forces us to examine in detail the syntactic and LF mechanisms involved in affix lowering constructions. Let us begin by considering the first question (I) in detail.

¹⁰ We will refine this proposal slightly in section 3.2, where we introduce the notion of an Affix Phrase, the position to which verbs raise in English. In progressive and perfective structures, AFP is headed by *-ing* and *-en*, respectively, which are selected by auxiliary *have/be*. Thus, *have/be* select an AFP complement, which *come/go* fail to satisfy.

3.1. *Verb Raising*

As pointed out in examples (5)–(10), *Come/go* differ from auxiliary *have/be* in a number of crucial respects. These differences are all accounted for if we assume that *have/be* are allowed to raise from their original position to INFL (or some other head superior to NEGP – we return to this issue below), while aspectual *come/go* are not allowed this option. Following Pollock (1989), we assume that in English, only verbs which do not assign a θ -role may raise into INFL. Hence, *have/be* may raise, assuming that these verbs do not assign θ -roles. However, as is illustrated in (20), aspectual *come/go* select an agentive subject. We interpret this to mean that these verbs assign a ‘secondary’ (or *adjunct*) θ -role (Zubizarreta 1981) to the NP in subject position.¹¹ This prevents verb raising. Given this hypothesis, the facts in (10) follow in full. Under standard assumptions, Subject-AUX Inversion only occurs with elements under INFL. If *come/go* may not raise, they may not invert, as illustrated in (10a). The same underlying assumptions account for the position of negation and emphatic markers, providing an account of the facts illustrated in (10b,c). The facts in (12) concerning adverb placement also follow directly from this structure and the hypothesis that aspectual *come/go* are not allowed to raise.

The impossibility of raising with aspectual *come/go* may also provide an account for the VP-deletion and VP-fronting facts illustrated in (7) and (8). Regardless of the particular analyses adopted for these two processes, we make the standard assumption that only elements which occur under INFL are stranded by VP-deletion and that such elements are never fronted by VP-fronting. It follows that aspectual *come/go* may not be stranded by VP-deletion, as shown in (7), and that they must undergo VP fronting, as in (8).

In this way, our analysis supports Roberts’ and Pollock’s idea that the relevant criterion affecting verb raising in English is not categorial but θ -theoretic. It would be incorrect to say that only ‘main verbs’ fail to raise

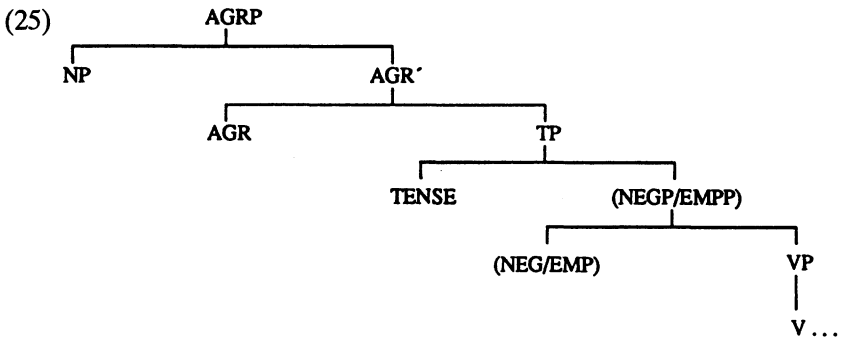
¹¹ Contrary to Pollock (1989), we assume that even the secondary θ -role assignment that these aspectual auxiliaries participate in is disallowed if verb raising into INFL has occurred. Pollock’s claim that “the assignment of adjunct θ -roles is not sensitive to the opaque vs. transparent distinction” (his fn. 28) is based on consideration of modals. It may be that adjunct θ -role assignment by modals is insensitive to this distinction because of their adverbial properties (as Pollock claims). Alternatively, we might assume that opacity for θ -role assignment results directly from the adjunction structure created by verb raising into INFL (or, more specifically, AGR). If English modals are generated in INFL, as is usually assumed, no adjunction structure exists and hence the opacity ‘parameter’ is irrelevant. In Romance languages, in contrast, even if we assume that modals are main verbs, raising is still allowed, as is generally the case for verbs in these languages.

in English, since it is well known that main verb *be* raises, as does main verb *have* in certain cases. It would be equally incorrect to say that only 'auxiliary verbs' raise, as we have now found two such verbs – aspectual *come/go* – which do not raise.¹² Thus, the relevant criterion is not whether a verb is a 'main verb' or an 'auxiliary verb', but rather whether the element in question assigns a θ -role or not – an interesting confirmation of the relevance of θ -theory to verb movement.

This provides an answer to question (I) above concerning the behavior of aspectual *come/go* with respect to verb raising. We now need to address questions (II) and (III). We must still explain why Affix Hopping, or whatever mechanism creates the effect of affix lowering, is also inapplicable with aspectual *come/go*. We turn to this directly. And we must also account for the presence of pleonastic *do* with aspectual *come/go* in negative, interrogative, and emphatic sentences, and (crucially) its unavailability in simple declaratives (cf. (3)). This issue is addressed in section 3.3.

3.2. Affix Lowering

Let us now assume, following Pollock (1989) and others, that Tense and Agr are not just features of INFL, but rather X^0 's which head their own maximal projections, Tense Phrase (TP) and Agreement Phrase (AGRP), within the following structure:¹³



Verb raising to INFL is now to be interpreted as raising to TENSE and

¹² We use 'auxiliary' to distinguish aspectual, modal, and other verbs in IP from the main verb in the lowest VP.

¹³ For the sake of simplicity, we omit certain important aspects of this structure, such as the presence of certain Specifier nodes. This structure, though clearly inspired by Pollock's work, differs in some crucial respects from his assumptions. For example, we assume, with Belletti (1990) that AGR is higher than T; Cf. also Chomsky (1991).

AGR. As discussed above, this is not allowed in English for θ -assigning predicates. Since the verb is barred from raising at S-Structure in English, it must be the case that AGR and TENSE lower onto the verb, since (at least in some cases) we see them overtly on the verb at PF (hence at S-Structure). This is the Affix Hopping analysis of Chomsky (1957). Within current theory, however, such a lowering process is problematic in that it leaves an improper chain (t_{AGR} , t_T , [V + [T + AGR]]). We assume that this improper chain must be corrected at LF by subsequent raising to the position of t_{AGR} . Thus, main verbs undergo affix lowering with subsequent LF raising of the V + affix complex (the details of this derivation will be presented below).

As noted above aspectual *come/go* differ from main verbs in this regard: they fail to undergo affix lowering. Suppose we assume, however, that the problem lies not with Affix lowering per se, but with the subsequent raising of V + affix to LF. Suppose, in fact, that *come/go* may not raise at LF for the same reason that they fail to raise at S-Structure: assignment of the secondary θ -role to the subject NP would be blocked by LF raising.

Let us now suppose also that the affixation requirement, which motivates lowering or raising, is limited to phonologically overt, i.e. 'morphologically visible', affixes. If both verb raising and affix lowering are blocked with *come/go*, then the morphologically visible third person singular present tense and past tense affixes are left without a host, and the structure is ruled out. Thus we derive the total ban on inflection observed with aspectual *come/go*, and the ungrammaticality of the examples in (2a-d).

One immediate consequence of this analysis for affix lowering is that in instances in which inflection has no overt morphological realization, like (1d,e), inflection need not lower at all. As we will see, this leads to no violation in the syntax, at LF, or at PF. We return later to the obvious questions that this approach raises for *do*-support.

The LF raising analysis and the proposed restriction on the LF raising of *come/go* bring up at least two questions which we must address in detail. First, how do the traces left by LF raising satisfy the ECP? Descriptively, how is the Head Movement Constraint (HMC) satisfied? Second, what are the consequences of LF raising for θ -marking and the Theta Criterion? In particular, why does LF raising with main verbs not result in a violation of Theta Criterion, as we claim is the case for *come/go*? These questions are addressed in sections 3.2.1 and 3.2.2, respectively. We will argue that the answer to the first question, concerning the ECP, provides an account of the presence of pleonastic *do* in the structures in (3). Our theory of *do*-support will be presented in section 3.3.

3.2.1. *LF Raising and the ECP*

We begin by considering whether proper government relations hold between antecedents and their traces in the structures we are concerned with. If it is possible to claim that proper government holds, given a reasonable extension of the principles assumed so far, then the HMC will reduce to the ECP in all relevant theoretical respects, and we can dispense with the HMC as an independent principle (as in Baker 1988). For antecedent government to hold, it must be the case that there are no barriers intervening between the various links of a chain.

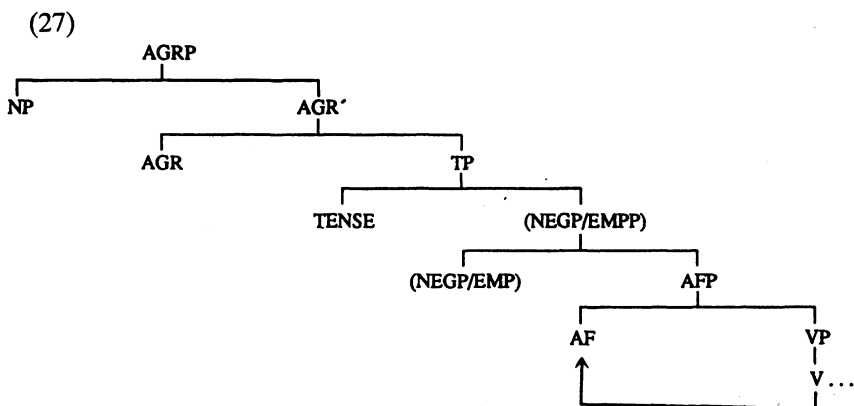
Under the proposals put forth in *Barriers* (Chomsky 1986a) a category δ is a barrier for β iff δ is a blocking category (BC), where δ is not a “defective” category (“inherent barrierhood”), or if δ is a category immediately dominating a BC (“barrierhood by inheritance”). We assume that TP and AGRP, maximal projections of nonlexical categories, are ‘defective’ in this sense. NEGP and EMPP, on the other hand, are maximal projections of lexical categories, hence not ‘defective’ in the required sense. δ is a BC for β iff δ is not L-marked and δ dominates β . In the *Barriers* system, L-marking involves θ -government by a lexical head. However, it is not clear how this definition of L-marking applies in the case of functional heads such as AGR and TENSE and their complements. They are arguably not lexical and their status as θ -role assigners is questionable. To be explicit, we will assume the following definition of a ‘lexical’ category:

- (26) A category α is lexical only if it has lexical content at S-Structure.

We assume that the property of being lexical is inherited by the trace of a lexical category. Thus, the trace of a (lexical) verb continues to L-mark its complements. It follows from (26) that a functional head can L-mark its complement only if it has lexical content at S-Structure. It seems reasonable to assume that the lexical status of a category is checked at S-Structure, since this level is the input to the PF component, where lexicality entails phonological realization. LF movements should not affect lexical status, as these processes are invisible to the PF component. This line of reasoning has a number of interesting consequences which we develop below.

First, LF raising out of VP will now always result in an ECP violation because it will be impossible to void the barrierhood of VP, a nondefective BC. Thus, we will assume that even in English the verb raises in the

syntax to a functional head labelled AF.¹⁴ This gives AF lexical content and allows it to L-mark VP, thereby voiding barrierhood. Let us then assume the following more fully articulated structure, with the arrow indicating syntactic verb raising:



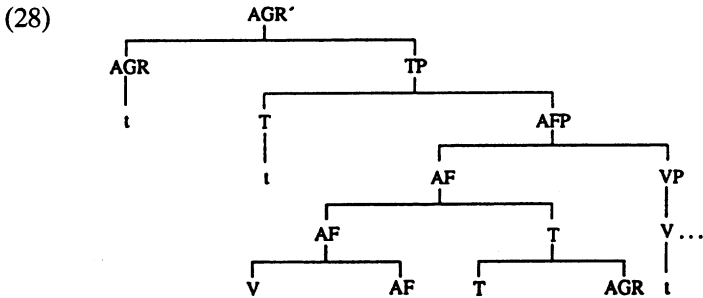
Agreement and tense inflection then lower onto [_{AF}V + AF].

A few comments are in order here concerning this proposal. First, these assumptions require that Adverb Phrases (ADVPs) be adjoined to AFP in order to derive Pollock's results and data such as those in (12) above. We must also assume that syntactic adjunction to AF does not raise a problem in the way that syntactic adjunction to TENSE and AGR does in English. In other words, AF is 'transparent' in terms of the parameter discussed in Pollock (1989). These assumptions are necessary to give a proper account of the data we are investigating, as we will show. Additionally, the suggested raising process solves a problem posed by the barrierhood of VP for subject-to-subject raising and passive structures. The consideration of A-chains in Chomsky (1986a) required a special mechanism to insure that the traces left by NP-movement in passive and raising structures satisfied the ECP. An account involving verb raising to INFL was developed there to solve this problem (cf. Chomsky 1986a, pp. 68–78). This solution appeared unmotivated, however, and, in the case of passive structures, required a particular interpretation of adjunction structures which did not seem appropriate for *be* + passive participle se-

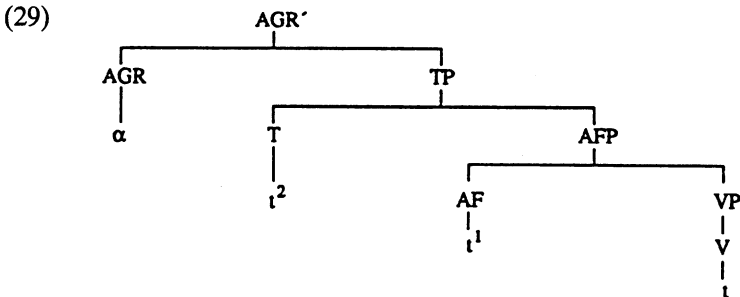
¹⁴ This node corresponds roughly to AGR-O in Chomsky (1991). Nothing of principle hangs on this terminological distinction. In Romance languages like Spanish, the structure we propose in (27) is amply supported by the order of inflectional constituents within verbs: e.g. *cant-a-ba-mos*, analyzed as [stem – 'thematic vowel' – Tense – Agreement]. The 'thematic vowel' would then occupy the AF⁰ position. The AGR-over-TENSE version of the 'split-INFL' hypothesis is proposed in Belletti (1990).

quences. Furthermore, an account in terms of raising to INFL is inconsistent with the discussion in Pollock (1989), Chomsky (1991), and the assumptions we make above. Raising to AF presents a solution to these problems. Finally, we assume that AFP is the category that contains the participial and progressive suffixes *-en* and *-ing*. Thus, the auxiliaries *have* and *be* select an AFP complement and the sentences in (2e,f) are ruled out as a violation of selectional restrictions.

At S-Structure, then, after the verb raises to AF yielding [V + AF] and Tense and Agr lower onto this complex, we have the following partial structure.



AF L-marks the VP since it has lexical content, voiding VP barrierhood and allowing for a proper antecedent government relation to hold between V and its trace inside VP. The AF complex, henceforth α , must now raise at LF to correct the improper chain that is formed by the lowering process, as discussed earlier. We assume that LF-raising involves adjunction to the traces left by the lowering process. This yields the following (partial) LF representation.



This structure is in conformity with the ECP: t^1 antecedent-governs t and t^2 antecedent governs t^1 . AFP, though a BC, is defective and hence not an inherent barrier. The same is true of TP, allowing α to antecedent-govern t^2 .

This concludes our discussion of affix lowering in declarative structures and its behavior under the ECP. In section 3.3 we will show that the

analysis proposed here provides an account of the presence of pleonastic *do* in contexts in which it appears. We turn now to discussion of the consequences of LF raising for θ -marking and the Theta Criterion.

3.2.2. LF Raising and θ -Theory

An important part of our account of the ban on inflection with *come/go* involves the inability of θ -assigning verbs to raise into TENSE and AGR in the syntax in English (see section 3.1). This impossibility has been attributed, following essentially the proposals made in Pollock (1989), to the opacity of these phrases, which ultimately results in a violation of θ -theory (the Theta Criterion, in particular). We have argued, moreover, that LF-raising of *come/go* is also blocked for θ -theoretic reasons. Thus affixation may not take place through the process of affix lowering. We must now explain why LF-raising does not lead to equally damaging θ -violations for other θ -assigning predicates. Note that if LF-raising did lead to the same problems, a language like English would not show verbal inflection on any θ -assigning predicate. Though this is the situation we encounter with aspectual *come/go*, it is not the case for other verbs. What is responsible for this difference in behavior?

A satisfactory analysis must reduce this difference in inflectional behavior to another, independent difference between these two classes of verbs. It does not seem right to attribute it to categorial distinctions. In all cases we are dealing with verbs; to impose any other categorial distinction, such as [\pm Auxiliary] or [\pm Aspectual], would be ad hoc and unwarranted.¹⁵ But there is a natural distinction between aspectual *come/go* and other θ -assigning main verbs. *Come/go*, in the use we have been calling 'aspectual', are secondary (or adjunct), θ -role assigners (in the sense of Zubizarreta 1981; cf. section 3.1 above), while other main verbs are primary θ -role assigners. Let us explore whether the difference in behavior noted in this paper can be made to follow from this distinction.

Consider for a moment the following proposal (to be revised immediately below): primary θ -role assigners are not allowed to raise in the syntax, but may raise at LF; secondary θ -role assigners are not allowed to raise in either the syntax or at LF. This proposal makes sense if we assume that the core property distinguishing primary θ -roles from secondary θ -roles concerns the level at which these θ -roles are assigned. As a matter of execution, let us assume that primary θ -relations are satisfied at D-Structure, while secondary θ -relations may be added at LF. LF-

¹⁵ For relevant discussion and further arguments against such unwarranted categorial distinctions, see Emonds (1985), especially chapter 4.

raising would then not allow secondary θ -relations to hold in the appropriate manner, whereas it would have no effect on primary θ -relations.

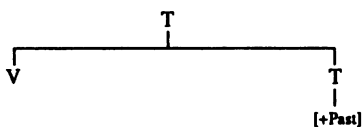
This line of analysis raises a question concerning Pollock's original insight which we have adopted here. If primary θ -relations are discharged at D-Structure, it is unclear why subsequent *syntactic* raising should present a problem for θ -theory. Why should S-Structure matter in this case, but not LF? We can solve this problem in the following way. Suppose that primary θ -role assignment occurs at D-Structure, with the verb still in its original position. We understand primary θ -role assignment as a process which indexes the θ -grid of a predicate, essentially as in Stowell (1981). Assume (as in *Barriers*) that this process requires sisterhood: α θ -marks β only if α and β are sisters. If we further assume that subject NPs are generated in some VP-internal position (as argued in Koopman and Sportiche (1991), Kitagawa (1986), and elsewhere), then sisterhood can be defined in terms of maximal projections. The process of primary θ -role assignment at D-Structure, itself is unaffected by either syntactic raising or LF-raising. Strictly speaking then, syntactic raising of a primary θ -role assigner is disallowed in English *not* because primary θ -marking is disrupted: something else is at play.

Consider the following. Verb raising leaves a trace in the original position of the verb. This trace is undeletable and must satisfy the Projection Principle, as well as the other principles discussed above. It does not participate in θ -role assignment, a process which requires the presence of a lexical category. That is, traces never 'inherit' from their antecedents the ability to θ -mark. Suppose, however, that in English the trace left by syntactic raising to an 'opaque' category fails to satisfy the Projection Principle, but that the trace left by LF-raising does satisfy the Projection Principle. This difference follows naturally once we take into consideration a fundamental difference between the structures that obtain after syntactic raising and after LF-raising. Syntactic raising adjoins the verb to a category which has content, e.g. [\pm Past] for TENSE, Person/Number features for AGR. Such contentful categories are 'opaque' in English. Hence, the trace left behind may not inherit properties from its antecedent, where such an inheritance is required to satisfy the Projection Principle. LF-raising, on the other hand, adjoins the verbal complex to an empty head, the trace left by the lowering process. (We put aside for a moment instances of LF-raising which adjoin the verb to pleonastic *do*, we return to these structures immediately below.) A reasonable assumption is that such an empty head is universally 'transparent', allowing the trace left behind to satisfy the Projection Principle.

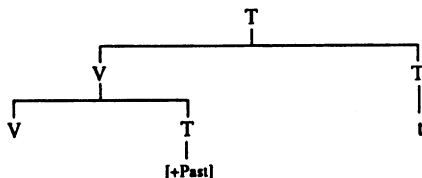
As an illustration, consider the following two structures; (30a), an S-

Structure resulting from syntactic raising to TENSE, and (30b), an LF-representation resulting from LF-raising to the trace of TENSE-lowering.

(30)a.



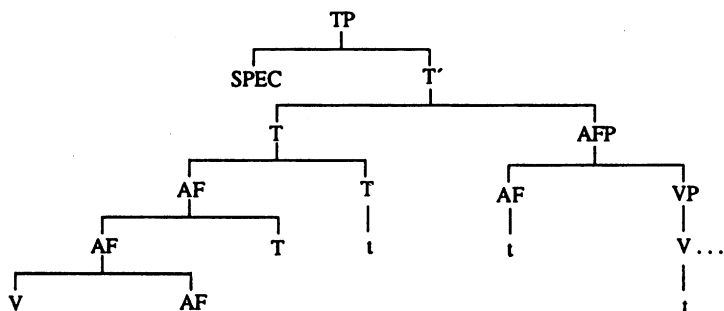
b.



We note that this difference in structure requires no extra stipulation. It is exactly what obtains given the possibilities made available by the general theory of adjunction and X-bar theory. It follows, now, that syntactic raising should cause ungrammaticality in English – specifically, a violation of the Projection Principle – whereas LF-raising should have no such dire consequences. For primary θ -role assigners, then, θ -marking is not problematic; but only the trace left by LF-raising can satisfy the Projection Principle.

A different picture altogether emerges when we consider LF-raising of a secondary θ -role assigner, such as aspectual *come/go*. The resulting structure will be similar to the one discussed above (30b), satisfying the Projection Principle, but now the process of θ -marking itself will be disrupted. The trace of raising cannot θ -mark the subject NP. The verbal complex, now adjoined to the trace left by the lowering of Tense and Agreement, also fails to θ -mark the subject. The lexical verb is not a sister to the subject, and the adjunction complex as a whole does not count as a lexical category. Since secondary θ -marking does not occur at D-Structure, the result of raising will always violate the requirement that a predicate, in this instance a secondary θ -role assigner, discharge its θ -role. The relevant structure is the following:

(31)



Thus, secondary θ -role assigners may not raise at LF. Secondary θ -assigners may never be inflected in a language with ‘opaque’ functional

categories. They cannot be inflected by raising in the syntax, and neither can inflection lower onto them. If it does, LF-raising is required, but this also yields a violation, hence the total ban on inflection observed above.

There is, however, one situation which would allow LF-raising of a secondary θ -role assigner. If it were to adjoin to a lexical category, this would allow θ -role assignment from the adjoined position. This is precisely what happens in structures containing pleonastic *do*. In accordance with the Principle of Full Interpretation (Chomsky, 1991), we assume that only contentful elements are allowed at LF, and more specifically, that pleonastic elements must be eliminated at this level of representation. Let us assume that this happens by adjoining a predicate to *do* at LF. Since the adjunction is now to a lexical category, θ -role assignment may take place. *Do*-support, then, is capable of 'saving' some structures. This gives us the configuration of facts first noted in (2a-d) and (3) above, repeated as (32) and (33).

- (32)a. *John goes talk to his advisor every day.
 b. *Mary comes talk to me whenever she has a problem.
 c. *I/you came talk to him yesterday.
 d. *He went eat at that restaurant yesterday.
- (33)a. Does John go talk to his advisor every day?
 b. John does too go talk to his advisor every day.
 c. I did not come talk to you yesterday.
 d. Didn't he go eat there yesterday?

(32a-d) are all ungrammatical because affix lowering onto *come/go* requires subsequent LF-raising to a nonlexical category. θ -marking at LF is blocked, and hence a secondary θ -role assigner fails to discharge its θ -role. (33a-d) are all grammatical because LF-adjunction to pleonastic *do* allows *come/go* to discharge its θ -role at LF.

In the section that follows, we resume our discussion of pleonastic *do*. We will see that the *come/go* facts cast doubt on the traditional analysis of *do* as simply a 'rescuer' of stranded affixes. We have just seen that one of the functions served by *do* is to provide a lexical adjunction site for secondary θ -role assignment at LF. In the next section, we will outline other grammatical functions associated with *do* and we will show that the appearance of *do* in certain structures, but not others, follows from the *Barriers* analysis proposed in section 3.2.1.

3.3. *A Theory of Pleonastic do and Affix Lowering*

Pleonastic *do* appears with main verbs in certain well-defined contexts: negation, inversion, and emphasis. As discussed above, main verbs do not raise because they are θ -role assigners; raising to INFL would violate the Projection Principle. Viewed in this light, the relevant descriptive generalization concerning *do* is as follows:

In the absence of modals, pleonastic *do* is licensed (in structures of negation, inversion, and emphasis) iff verb raising is disallowed.

This generalization provides an interesting account of the presence of pleonastic *do* with main verbs, and its absence with auxiliary *have/be*. Auxiliary *have/be* do not have θ -grids and therefore may raise; compare **I do not have eaten today* vs. *I have not eaten today*, etc. By the same token, this generalization accounts for the presence of pleonastic *do* with aspectual *come/go*, under our hypothesis that these two verbs do not raise because θ -role assignment is involved. Let us consider these data in more detail.

As shown in (3), repeated above as (33), pleonastic *do* appears with aspectual *come/go* only in contexts of negation, Subject-AUX Inversion, and emphasis. Let us compare this situation to that of θ -assigning verbs under the standard analysis. In English, sentences with main verbs are usually analyzed by making reference to a special rule which lowers inflection onto the main verb, the Affix Hopping rule of Chomsky (1957). The standard analysis relies in some way or another on the idea that pleonastic *do* appears to 'save' structures where Affix Hopping has not applied, either because the affix has been moved to COMP by Subject-AUX Inversion and is therefore too far away from its potential host, as would be the case in (33a), or because a negative or emphatic element (*not*, or *too*) occurs between the affix and the host verb, as in (33b,c) (or because of a combination of some of these factors, as in (33d)). In the absence of these blocks, Affix Hopping applies regularly with all (main) verbs. Under such an analysis, then, the central motivating factor controlling the appearance of pleonastic *do* is the presence in a given structure of affixal morphological material which cannot find an appropriate host because Affix Hopping is blocked.

Note, however, that the situation is quite different with aspectual *come/go*, casting doubt on this line of reasoning. Third person singular present tense indicative inflection and past tense inflection, realized on main verbs as *-s* and *-ed* (or as vowel changes or stem suppletion), may not

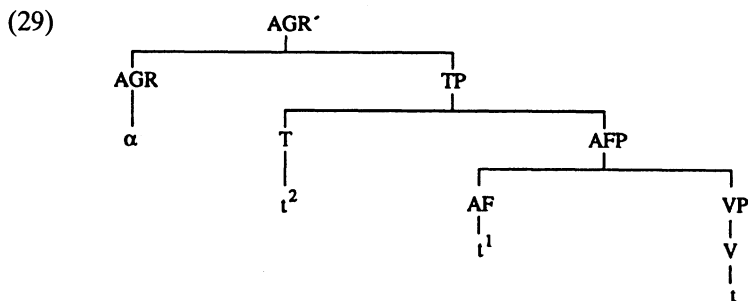
'hop' onto aspectual *come/go* (see (34a) and examples discussed above). Despite this, pleonastic *do* is not allowed to 'save' the structure. If *do* is inserted, the corresponding sentence is interpreted invariably as an emphatic (e.g. in (34b)).¹⁶

- (34)a. *He goes talk to you every day.
 b. He does go talk to you every day!

On the other hand, non-third-person present tense inflection, which has a 0-realization, is permissible with *come/go*, as in (35), but pleonastic *do* is still required in instances of Subject-AUX Inversion, negation, and emphasis, as shown in (36):

- (35) I/you/we/they go talk to him every day.
 (36)a. I/you/we/they *(do) not go talk to him every day.
 b. I/you/we/they *(do) too go talk to him every day.
 c. *Go I/you/we/they talk to him every day?
 d. Do I/you/we/they go talk to him every day?

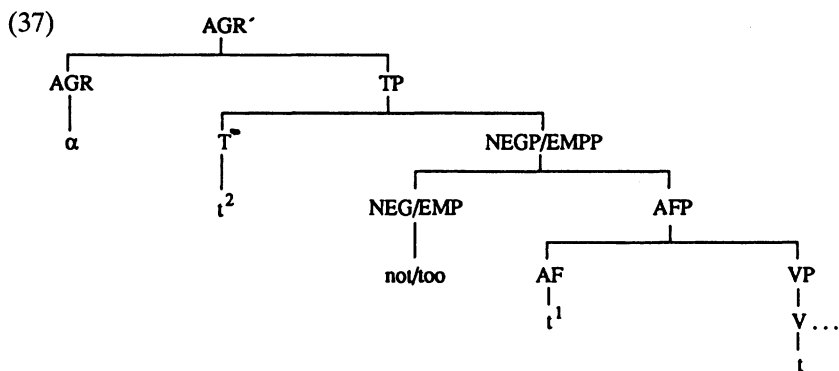
This situation is quite different from that of main verbs, where the lexical vs. 0-status of the affixes is irrelevant. As a point of departure, let us recall the structure which results from affix lowering and subsequent LF-raising with main verbs, as in (29), repeated below for convenience.



Recall that this structure meets the ECP: t^1 antecedent-governs t and t^2 antecedent-governs t^1 . AFP, though a BC, is defective and hence not an inherent barrier. The same is true of TP, allowing α to antecedent govern t^2 .

¹⁶ We assume that in the absence of the overt emphatic markers *too/so*, as in (34b) or *John did talk to his advisor today!*, there is an empty EMP node where the overt marker would appear. Note that there is no correlation between presence of *do* and emphatic interpretation. Negative sentences and interrogative sentences both contain *do*, but are not interpreted as having emphasis of any type (in the absence of stress). Equally, there are emphatic sentences which do not contain *do*: *I was (indeed/too) smoking!*, *I have (too) seen that movie!*.

Consider now the effect of the presence of a negative or emphatic element in this structure.



In the structure in (37), t^2 does not antecedent-govern t^1 since T does not L-mark NEGP. NEGP is a BC and a barrier, since we assume that it is not a defective category; it is therefore an inherent barrier. We now have a complete account for the ungrammaticality of the sentences in (38).

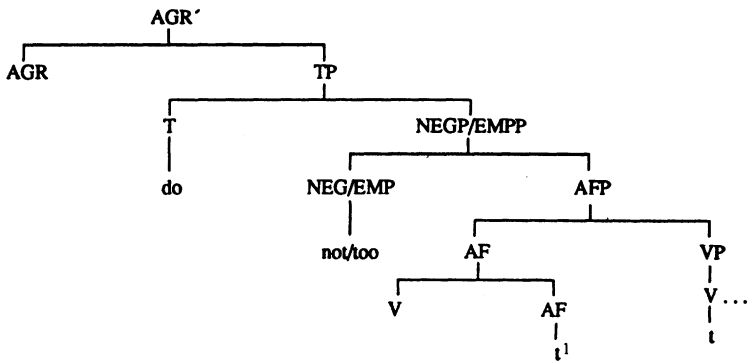
- (38)a. *John likes not apples.
 b. *John not likes apples.

(38a) is ungrammatical because a θ -assigning verb has raised to TENSE (and AGR) in the syntax, a possibility disallowed in English given the 'opacity' hypothesis. (38b) constitutes an ECP violation at LF under the account just presented. Both sentences are ruled out as instances of illicit raising, one at S-Structure and the other at LF. Pleonastic *do* allows a grammatical outcome for sentences like (38), yielding (39):

- (39) John does not like apples.

Assume that pleonastic *do* is inserted under [+finite] TENSE at S-Structure. This is supported by the complementary distribution of pleonastic *do* and modals and the absence of *do* with infinitives. Crucially, *do*-insertion lexicalizes TENSE. Since T now contains a lexical element at S-Structure, it can L-mark NEGP voiding barrierhood. The resulting S-Structure is as in (40) (certain details omitted):

(40)



On this account, the *do*-insertion process serves several independent functions which we now discuss. First, as under the traditional analysis, *do*-support serves as a host to carry the tense and agreement suffixes which cannot lower onto the verb due to the presence of some block, such as negation. However, as the *come/go* data show, this cannot be the whole story. If it were, then sentence (34b), repeated below, would be possible with a non-emphatic interpretation, which it is not.

(34)b. He does go talk to you every day.

A second function served by lexicalizing TENSE is related to a more abstract property which has been discussed in the literature in a different context. It has been claimed independently that verbal elements must satisfy a visibility requirement akin to Case-marking for nominal elements (cf. Fabb 1984, Roberts 1985, Guéron and Hoekstra 1988, among others). Let us call this abstract property 'verbal Case'. The basic assumption is that TENSE assigns verbal Case to a verb, rendering it visible. This assignment process requires government. In structures lacking negation, the process is straightforward: TENSE governs the [V + AF] complex, even if it is not lexical, given that AFP is not a barrier. In structures containing negation (or the emphatic marker), TENSE is not allowed to govern the verb unless NEGP barrierhood can be voided through L-marking. Thus, lexicalizing TENSE in these structures allows for the assignment of 'verbal Case', granting visibility to the verb.¹⁷

The remaining functions associated with *do*-support concern its effects

¹⁷ Main verbs embedded under auxiliary *have/be* and aspectual *come/go* would be assigned 'verbal Case' by these elements. This would then be the core property of 'auxiliary' verbal items: the ability to take an AFP complement (cf. Guéron and Hoekstra 1988). In infinitival structures, *to* has been argued to fulfill precisely this function – although other factors seem relevant here as well. Note the well-formedness of *For John to not try to do that would be a mistake*.

at LF. As discussed in section 3.2, we assume that pleonastic *do* must be eliminated at LF in accordance with the Principle of Full Interpretation (Chomsky 1991). On our analysis, this is accomplished by adjoining a predicate to *do*. The assumption that the predicate adjoins to *do* has a number of desirable consequences. First, as discussed in section 3.2, adjunction to a lexical head allows the secondary θ -role assigners *come/go* to discharge their θ -roles. Second, taken in conjunction with the "least effort" guideline (cf. Chomsky 1991), it derives the descriptive generalization noted earlier, that pleonastic *do* occurs with θ -assigning predicates only, (i.e., with predicates that fail to raise in the syntax). *Do* will not appear with non- θ -assigning verbs such as auxiliary *have/be* (cf. **I do not have eaten today*, **I did not be waiting for you*, etc.) because these auxiliaries can raise in the syntax, which results in a shorter derivation than *do*-support followed by LF-raising. By the same token, it allows pleonastic *do* with aspectual *come/go*, as these verbs assign secondary (or adjunct) θ -roles and hence do not raise. Thus, the relevant distinction established concerning pleonastic *do* and the verbs with which it may or may not co-occur follows without stipulation.

Finally, this analysis entails that every structure containing pleonastic *do* must involve LF-adjunction of a predicate to this element, yielding essentially the following structure: [_V α [_V *do*]]. The result of this adjunction process in a structure such as (40) is that α (the [V + Af] complex) must raise to adjoin to *do*. This process will only be legitimate if α can antecedent-govern its trace from that position.¹⁸ In order for the antecedent trace relation to be well-formed, once again NEGP barrierhood must be voided. This will be the case only if the resulting category counts as lexical. But by condition (26) above, this category will count as lexical only if *do* is present at S-Structure. Thus, the last function performed by lexicalizing TENSE at S-Structure via *do*-support involves precisely the elimination of *do* at LF, required by the Principle of Full Interpretation.

To summarize, *do*-support performs three distinct, though clearly related, functions. One, it serves to carry third person singular present tense or past tense inflection, which must be bound to a verbal base at PF due to its affixal morphological nature. Two, it allows TENSE to assign 'verbal Case' to render a verb visible in structures in which case assignment is otherwise impossible due to the presence of an intervening barrier. Three, it allows verb raising at LF necessary for adjunct θ -role assignment, and elimination of a pleonastic element. In all instances, the central contribu-

¹⁸ Note that its trace should be nondeletable as it is the trace of a contentful element, the [V + AF] complex which contains the verb.

tion of *do*-support is to lexicalize a category which would otherwise not count as lexical. But this lexicalization requirement is motivated by principles of distinct levels of representation (S-Structure, PF, and LF) which are independent of each other. There is a certain naturalness, then, in assuming that the *do*-insertion process occurs at S-Structure, as this is the level which serves as the interface between PF and LF, and the level at which we assume Case-theoretic conditions to be satisfied.

Pleonastic *do* shows that the different levels of grammar (S-Structure, PF, LF) are also evaluated independently by principles of economy. Chomsky (1991) proposes a “least effort” guideline, mentioned above, according to which derivations do not allow “superfluous” elements or steps, that is, elements or steps which are not required by the grammar. By the ‘least effort’ guideline, *do* can only be inserted into those structures in which it is needed to fulfill the various grammatical functions outlined above. Note, however, that on an analysis in which *do* has distinct functions at different grammatical levels, economy requirements may be unevenly satisfied on the different mappings. So for example, while insertion of *do* may be necessary to fulfill a PF requirement, it may be ‘superfluous’ with respect to LF functions. With this in mind, let us reconsider the sentence in (34b), which, recall, is possible only on an emphatic interpretation.

(34)b. He does go talk to you everyday!

We might ask why this sentence has only an emphatic interpretation, or more to the point, why *do* cannot ‘rescue’ this sentence on a non-emphatic reading. We are now in a position to suggest an answer to this question. The insertion of pleonastic *do* in (34b) is required in order to host the phonologically realized third person affix, that is, to satisfy a PF requirement. However, the presence of *do* at LF (and S-Structure) violates the ‘least effort’ guideline; *do* is ‘superfluous’ on this mapping since it is not needed for barrier-theoretic reasons. Thus, *do* cannot rescue (34b) on a non-emphatic reading since its insertion violates economy. However, in structures containing an EMP node (like structures containing a NEG node), principles of LF (as well as principles of PF) require *do* for reasons discussed earlier.¹⁹ Intuitively, the emphatic reading of *do* provides a

¹⁹ In footnote 16 we assumed that in the absence of the overt emphatic markers *too/so* – as in *John did (too/so) talk to this advisor today!* there is an empty EMP node which accomplishes the same as a full EMP node. Alternatively, we could assume PF-deletion of *too/so*, which are ‘recoverable’ given the presence of pleonastic *do*.

mechanism for reconciling the competing economy demands of the different levels of grammar.²⁰

We have already discussed why the sentences in (38) are ungrammatical. To conclude this section, let us consider how our theory of pleonastic *do* accounts for the facts in (41) and (42):

- (41)a. I/you/we/they *(do) not/too enjoy Liszt.
 b. He *(does) not/too enjoy Liszt.
 c. I/you/he/. . . *(did) not like the concert.
- (42)a. I/you/we/they *(do) not/too go practice every day.
 b. He *(does) not/too go practice every day.
 c. He *(did) not/too go practice enough.

In (41a) and (42a), *do* is required in order for TENSE to Case-mark *enjoy* and *go*, respectively. Case marking requires government, and government is blocked by the presence of a NEGP or EMPP, a barrier if it is not L-marked. *Do*-support lexicalizes TENSE, allowing it to L-mark these intervening categories, and thereby voids barrierhood. This process fulfills the same requirement in (41b,c) and (42b,c), but *do* is also needed here to carry tense and agreement suffixes which have morphological realizations and which would otherwise be stranded, leading to a violation of one of their morphological requirements. Additionally, by lexicalizing TENSE *do*-support allows for LF-raising of the verb, required for θ -role assignment and elimination of the pleonastic element at LF in accordance with the Principle of Full Interpretation. Sentences containing pleonastic *do* in the absence of *not* or *too* (or interrogative inversion, which we have not discussed in detail here) are now uniformly characterized as emphatic; a non-emphatic reading is ruled out by principles of economy.

Finally, our analysis of *do* has consequences for the theory of 0-affixation. On the traditional Affix Hopping analysis (Chomsky 1957), 0-affixes were assumed to require a phonological host just like overt affixes. Thus, English first and second person present tense 0-affixes were taken to undergo Affix Hopping, and where this was blocked, as in the case of negative and interrogative structures, *do*-support was required to host the 0-affix. We now have evidence, however, that when inflection has no overt morphological realization, it need not lower at all. This leads to no viol-

²⁰ To properly distinguish between 34b and the totally impossible (even with emphatic interpretation) **I do not have eaten yet!*, the 'least effort' condition must be interpreted so that derivations which conform to principles of UG are more highly valued (i.e. less effortful) than derivations which involve language-particular rules like *do*-support; cf. Chomsky (1991) for relevant discussion.

ation in the syntax, at LF, or in PF. Hence, structures such as (43) are fully grammatical.

(43) I/you/we/they go talk to him every day.

In the corresponding negative, emphatic, and interrogative structures (the latter to be discussed below) *do*-support is required, as in (41a, 42a), not to host the affix, but rather for the reasons just outlined.

Before we conclude, we will address two areas which might appear problematic for the analysis of pleonastic *do* developed above. The first one concerns subjunctive structures, and the second one involves inversion structures.

3.3.1. *Subjunctives*

As noted in section 1, English subjunctives show no inflectional morphology. This can be seen in sentence (4), repeated below for convenience, as well as in the examples in (44):

- (4)a. The police insist that Bill go talk to the counselor once a week.
 b. I requested that she come discuss this problem with me in person.
- (44)a. They request that you be there on time.
 b. They insist that he disclose his bank account.

Note furthermore that in negative contexts subjunctives do not require, or even tolerate, pleonastic *do*:

- (45)a. They request that you 0/*do not be there tomorrow.
 b. They insist that he 0/*does not be late.

We also observe that *be*, which normally raises over negation in indicatives, is not allowed to do so in subjunctives:

- (46)a. I insist that you not be there (when she arrives).
 b. *I insist that you be not there (when she arrives).²¹

²¹ This sentence is grammatical as a case of phrasal negation, with *not* attached to *there* as in [*not[there]*], but not as an instance of true sentential negation. This grammatical reading is completely irrelevant to our concerns.

These data indicate that subjunctive TENSE is 'lexical'. Since pleonastic *do* consequently is not *required* to lexicalize TENSE, it is not even *allowed* to lexicalize TENSE, by the 'least effort' condition. *Be*-raising is also not allowed, as it is not when TENSE is occupied by a lexical category such as a modal verb. On the other hand, the lexical status of TENSE in subjunctives now requires further clarification, given that this node itself appears empty at S-Structure.

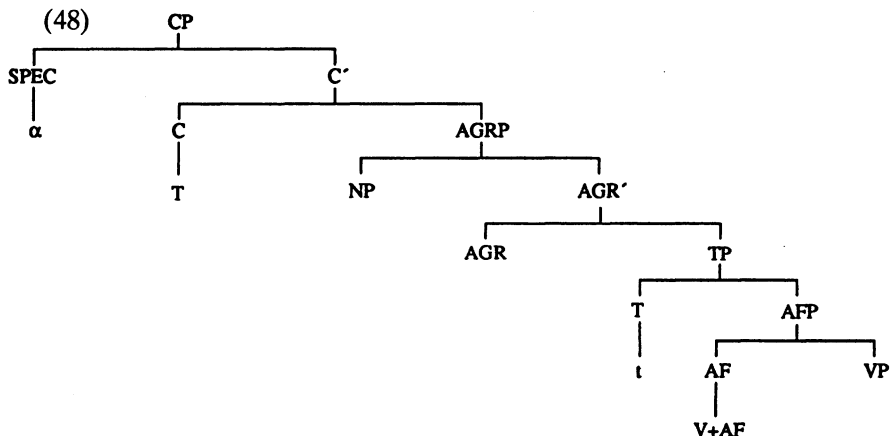
It is well-known that *that*-deletion is not allowed in subjunctive complements:

(47) I insist *(that) he be there on time.

Let us interpret this as a sign that the complementizer *that* has lexical (semantic) content in subjunctives, thus disallowing free deletion. This is not unreasonable given various proposals which suggest that subjunctives contain a special 'subjunctive operator' in COMP (cf. among others Kempchinsky 1986, Enç 1986). Suppose further that this lexical complementizer, *that*, originates in TENSE and raises to COMP (for relevant discussion, see Pesetsky 1982 and many other recent sources). The trace of this raising process will now also count as lexical. This accounts, then, for the properties of subjunctives discussed above.

3.3.2. Subject-AUX Inversion

Consider finally structures of subject-auxiliary inversion in interrogatives. In matrix interrogatives which do not involve a subject *wh*-phrase, TENSE preposes over the subject in the familiar Subject-AUX Inversion process. If the matrix TENSE lacks a modal, *have*, or *be*, pleonastic *do* appears. The following structure illustrates the relevant configurations (details omitted):



If TENSE is not lexical, it will not be able to Case-mark the verb, because AGRP will be a blocking category and inherit barrierhood from TP, also a blocking category. Lexicalizing TENSE, then, allows it to L-mark AGRP, voiding barrierhood. Its trace will also count as lexical, allowing it to Case-mark the verb, as required under the analysis sketched above.

4. CONCLUDING REMARKS

This paper has presented evidence that an inflectional restriction on a small class of verbs in English is due to syntactic and thematic considerations which are independent of principles of word formation. Thus it supports the claim that the basic properties of inflectional morphology are to be analyzed by making reference to the syntax. On the other hand, we have argued that syntactic processes like pleonastic *do* insertion and head-to-head movement, while providing a way for later morphological requirements to be satisfied, are blind to these requirements and are not affected by them.

We have argued that primary θ -role assigners are not allowed to raise in the syntax in English, but may raise at LF to correct an ill-formed chain that is formed by affix lowering. Secondary (or adjunct) θ -role assigners, on the other hand, may raise neither in the syntax nor at LF (except when they adjoin to *do*). Hence, they must remain uninflected, yielding the essential empirical data discussed in this paper, under the assumption that *come/go* are secondary θ -role assigners. These results follow directly from a more articulated theory of sentential projections, coupled with Pollock's 'opacity' parameter plus independent factors made available by the general theory of adjunction and X-bar theory.

Finally, we wish to note on a purely anecdotal basis that children appear to master the construction discussed in this paper quite early (around age 2). Based on our observations, they fail to make errors involving inappropriate inflection of *come/go* (with third person singular subjects, past tense, etc.); thus they obey the restriction discussed here. This is particularly noteworthy in that during this period children tend to widely over-regularize morphology, creating *eated*, *goed*, *bes*, etc. However, it makes sense under our theory, as the only thing children must 'learn' is that aspectual *come* and *go* are secondary θ -role assigners. The rest is given by principles of UG. But to say they must 'learn' that these verbs are secondary θ -role assigners is simply to say they must know that in an aspectual construction *come* and *go* are not primary predicates. This much 'learning' is clearly required by all theories of acquisition, and amounts

to nothing more than the claim that children must be aware of the meaning of these words in the relevant sentences.

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