

# Rules and Exceptions in the English Auxiliary System\*

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## Abstract

This paper sketches an analysis of the English auxiliary system, including finite negation, inversion, ellipsis, contraction, and the restricted distribution of unfocused *do*. Negative and other adverbials are selected by the finite auxiliary, enabling a treatment of lexical variation in scope assignment. Auxiliary constructions (rather than auxiliary verbs) are featurally distinguished from others, allowing a succinct account of the verb *do* in terms of lexical specification. This constraint-based, lexicalist analysis expresses the central generalizations governing the auxiliary constructions, as well as the lexical and constructional idiosyncrasies that pose a serious challenge to previous proposals.

## 1 Introduction

Since the inception of generative grammar in the 1950s, transformations have played a central role in analyzing the complex properties of the English auxiliary system (EAS), most notably the seemingly puzzling distribution of *do*.<sup>1</sup> Other researchers (Grimshaw 1997, Bresnan 2000, Vikner 2001) have seen the auxiliary system as evidence for viewing grammaticality as an ‘optimization’ problem of the sort that can be modeled within Optimality Theory (OT).

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<sup>1</sup>But see Lasnik 1995 and Lasnik et al. 2000 for a more recent critical perspective.

By contrast, monotonic, constraint-based frameworks have failed to provide fully satisfying accounts of EAS. Despite their success in analyzing the lexical idiosyncrasy that surrounds such matters as inversion, negation, and contraction, the fact remains that all such accounts (from Hudson 1976 through Gazdar et al. 1982, Pollard and Sag 1994, and Warner 2000) have failed to provide a satisfactory account of the restricted distribution of unstressed *do*, i.e. the famous contrast between pairs like (1)a,b:

- (1) a. \*Kim *dí*d leave.
- b. Kim *dí*d leave.

It is sometimes thought<sup>2</sup> that such contrasts can be explained in pragmatic terms. For example, one might try to explain the deviance of (1a) as pragmatic preemption, given the availability of the synonymous (2):

- (2) Kim left.

Such an account would presumably appeal to Grice's (1975) maxims of Quantity ('Be brief') and/or Manner ('Avoid Prolixity'). In a similar vein, Falk (1984) assumes that (2) preempts (1a), but by a grammatical principle equivalent to the principle of Economy of Expression discussed in Bresnan 2000. In all such accounts, (1b) is to avoid preemption because some further meaning is being conveyed that (2) cannot express.<sup>3</sup> According to Economy of Expression, syntactically more complex sentences are preempted by the availability of syntactically less complex sentences that are semantically (or functionally) equivalent. Morphology thus competes with, and systematically blocks, syntax.

But the trouble with such explanations is that they explain too much. First of all, they seem to leave no room for dialects of the sort reported by Palmer (1968) (see Klemola 1998 and Schütze 2004 for further discussion), where examples like (1a) are supposed to be fully grammatical and completely synonymous with (2). In addition, the competition-based approach would lead us expect, incorrectly, that examples like the following should also be preempted:

- (3) We thought they would (cf. they'd) accept our offer.
- (4) I will not (cf. won't) put up with this.

Similarly, optional ellipsis, as in the following examples, should not be possible:

- (5) I know (that) she's right.
- (6) Pat prefers (for) them to go first.
- (7) The Red Cross helped them (to) get back on their feet.
- (8) Kim went to the store before Sandy went to the store  
(cf. ...before Sandy did \_\_ .)

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<sup>2</sup>See, for example, Kim 2000.

<sup>3</sup>In order for this analysis to succeed, it would of course also have to explain why (i) does not preempt (1b):

- (i) Kim *lé*ft.

- (9) They're more likely to go to Paris than they are to go to Rome.  
 (cf. They're more likely to go to Paris than (to) Rome).
- (10) A: They said read they read a lot of stories to [unintelligible] last night.  
 B: Whó did they say they read a lot of stories to last night? (cf. Who?/To whom?)

This is a worrisome incorrect prediction of preemption-based theories.

One might try to correct this problem by resorting to distinctions of finer grain. But it is hard to find independent motivation for a semantic or functional distinction between contracted and uncontracted forms, between embedded clauses with or without *that*,<sup>4</sup> or between deaccented and ellided expressions (for example). In any case, an analysis along these lines would have to explain why (1a) is not semantically/functionally distinct from (2), since otherwise the preemption-based explanation for (1a) would be undermined.

The contrast between (1a,b) appears to be the kind of problem that should be accounted for not by general principles of preemption, but rather by the particulars of the grammar of English. Indeed, it was Chomsky's (1955, 1957) particular English grammar of EAS and its account of contrasts like (1a,b) that established the framework of transformational grammar within the field of linguistics. Unfortunately, transformational analyses of EAS have not weathered well. As far as I am aware, they have provided no account of the lexical idiosyncrasy observed over the course of the last quarter century (which I survey below). Moreover, even ignoring these problems, there are at present no agreed upon, movement-based analyses of EAS that are consistent with the current assumptions of transformational theory. For example, as Lasnik (2000: 181–190) stresses, the Minimalist analysis articulated in Chomsky (1993) fails to deal with the ungrammaticality of even simple examples like *\*John left not* or *\*John not left*. Lasnik also observes that Chomsky's approach provides no basis for explaining the French/English contrasts in adverb position discussed by Pollock (1989), e.g. *embrasse souvent* vs. *often kisses*.

ADD DISCUSSION OF LASNIK 2000 and FREIDEN 2005.

In this paper, I present an analysis of EAS that expresses the well-known generalizations about auxiliary constructions, and at the same time accounts for the often-ignored cases of lexical idiosyncrasy, including the distribution of the auxiliary *do*. This proposal, compatible in principle with any constraint-based grammatical framework, will be presented in terms of a constructional theory of grammar.<sup>5</sup> In addition to its superior treatment of EAS, my proposal (as argued by Kim and Sag (2002)) provides the basis for a simpler explanation of the differences between French and English adverb position and their systems of negation.

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<sup>4</sup>But see Walter and Jaeger 2005 and Jaeger and Wasow 2005.

<sup>5</sup>I will draw from a variety of construction-based approaches to grammar. The most conspicuous influences will be Head-Driven Phrase Structure Grammar (HPSG) and (Berkeley-style) Construction Grammar. See in particular Sag et al. 2003 (Chapter 16), Fillmore et al. to appear, Ginzburg and Sag 2000, Sag 1997, and Malouf 2003.

## 2 Basics

As is well known, English makes an important distinction between auxiliary and non-auxiliary phenomena. The data in (11) illustrate what have been referred to (see Quirk et al. 1985, Warner 1993) as the NICE properties:

- (11) The NICE Properties (Quirk et al. 1985; Warner 1993):
- a. (Finite) **N**egation: Lee will not eat apples / \*Kim eats not apples.
  - b. **I**nversion: Has Lee eaten apples? / \*Eats Lee apples?
  - c. **C**ontraction of *not*: didn't, shouldn't / \*eatn't,...
  - d. (VP-) **E**llipsis: Kim isn't kicking the ball, but Lee is \_\_ / \*but Lee likes \_\_ .

To this list, we may add a fifth property of (finite) auxiliaries: their ability to combine with the particles *too*, *so* or *indeed* (see, e.g. Pullum and Zwicky 1997) to perform a 'reaffirmation' function. These combinations are used to reaffirm the truth of a proposition that has just been denied by the addressee.<sup>6</sup>

- (12) A: Kim won't read it.  
B: Kim will *tóo/só* read it.

The reaffirmative particles are always accented and combine only with auxiliary verbs:

- (13) a. \*Kim will *tóo/só* read it.  
b. \*Kim reads *too/so* it.

Reaffirmation can also be achieved without *too* or *so*, simply by accenting a finite auxiliary verb:

- (14) A: Kim won't read it.  
B: Kim *wíll* read it.

As noted by Jackendoff (1972), the potential for reaffirmation function is a special property of accented auxiliaries, one that distinguishes them from accented nonauxiliary verbs. We may thus add this **R**eaffirmation potential (in both guises) to the list of properties that distinguish auxiliary verbs from others. For this reason, I will henceforth refer to auxiliary-distinguishing criteria as the **NICER** properties.<sup>7</sup>

The auxiliary verb forms of English are few in number, as illustrated in (15):

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<sup>6</sup>*So* and *too* occur almost exclusively in American varieties, it seems. *Indeed* is the parallel form in British English, though it occurs in American varieties, as well:

(i) £Lee will **INDEED** eat apples/\*Kim eats **INDEED** apples.

I will use the symbol £' to mark a sentence as fully acceptable in British English, as well as in certain varieties of the British Commonwealth.

<sup>7</sup>For a slightly different classification, and an overview of the grammatically relevant properties of auxiliaries, see Huddleston, Pullum et al. 2002, pp. 90–115.

(15) **AUXILIARY VERB FORMS (Palmer 1968: 19)**

LEXEME	finite	non-finite
BE	<i>is, are, am, was, were</i>	<i>be, being, been</i>
HAVE	<i>has, have, had</i>	<i>have, having</i>
DO	<i>do, does, did</i>	
WILL	<i>will, would</i>	
SHALL	<i>shall, should</i>	
CAN	<i>can, could</i>	
MAY	<i>may, might</i>	
MUST	<i>must</i>	
OUGHT	<i>ought</i>	
DARE	<i>dare</i>	
NEED	<i>need</i>	
USED	<i>used</i>	

These are all finite verbal forms, except for (base form) *be, being, been*, (base form) *have*, and *having*.

### 3 Contraction

Absent from (15) are the *not*-contracted forms, all of which are finite. These exhibit further lexical idiosyncrasy<sup>8</sup>

- (16) a. *won't* instead of *\*willn't*  
b. *don't* (/dɒnt/ instead of *\*/dʌnt/*)  
c. *mustn't* ([mʌsnt̚] instead of *\*/mʌstnt̚*)

Moreover, there are the irregularities manifest in varieties that allow the forms shown in (17):<sup>9</sup>

- (17) a. *can't* (% /kʌnt/ not *\*/kænt/*)  
b. %*shant*/*\*shalln't*

Other idiosyncratic contracted forms include the following:

- (18) †*mayn't*, %*ain't*, %*usen't*, %*shan't*

Moreover, there are gaps in the contraction paradigm, at least in standard varieties of English (See Hudson 2000.):

- (19) *\*amn't*

In addition, as first noted by Horn (1972) (see also Zwicky and Pullum 1983), contracted forms exhibit scope idiosyncrasy. For example, *not* must outscope the modal in the interpretation of *won't* (in either its volitional or futurate uses):

<sup>8</sup>See Zwicky and Pullum 1983 and Quirk et al. 1985 (3.23; 3.39).

<sup>9</sup>I use the symbol % to indicate a form that is well-formed only in certain varieties and † to indicate an erstwhile dialectal form that now seems to be obsolescent.

(20) a. Pat [won't do that]. 'It's not the case that Pat will do that.'

b. *won't*: **NOT (WILL ...)**

By contrast, the contracted forms of deontic modals like *should* exhibit the opposite scope interpretation:

(21) a. Pat [shouldn't do that]. 'It is incumbent on Pat not to do that.'

b. *shouldn't*: **SHOULD (NOT ...)**

We will have more to say about this in our discussion of finite negation below.

In sum, the phonological and semantic idiosyncrasies documented by Horn, Zwicky, Pullum and others clearly point to a lexical analysis of *not*-contraction, i.e. one that rejects contraction as a phonological rule of the sort proffered in modern textbooks (e.g. HAEGEMAN, RADFORD REF.) and accepted uncritically in much of the generative literature.

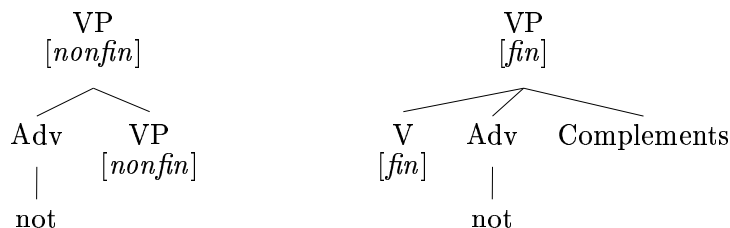
## 4 Negation

Ever since Klima 1964, it has been known that there is a syntactic distinction to be drawn between two kinds of negation: constituent negation and what is variously termed 'sentential', 'clausal' or 'finite' negation.<sup>10</sup>

### 4.1 Constituency:

Constituent negation involves structures like those in (22a), while finite negation leads us, I argue, to structures like (22b):

(22) a. Constituent Negation:      b. Finite Negation:



The assumption that both types of negation exist of course leads us to the conclusion that the two types may cooccur within a single sentence, as illustrated in (23):<sup>11</sup>

(23) a. &Kim can not do that.

b. Kim cannot [not take advantage of that offer].

For any given example involving *not*, it is thus not obvious in advance whether *not* is instantiating constituent or finite negation.

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<sup>10</sup>Relation to work in logic distinguishing internal and external negation. Also metalinguistic negation and its relation to all this. Reference Horn.

<sup>11</sup>I use the symbol '&' to indicate an ambiguous example.

## 4.2 VP Constituent Negation: *Not* as Modifier

When *not* negates an embedded constituent, it behaves much like the negative adverb *never* (see Baker 1989):

- (24) a. Kim regrets [never/not [having read the book]].  
b. We asked him [never/not [to try to read the book]].  
c. Duty made them [never/not [miss the weekly meeting]].

Kim and Sag (2002) account for these and other properties of constituent negation by regarding *not* as an adverb that modifies nonfinite VPs, rather than as a head of its own functional projection, as is often assumed in generative discussions. On their analysis, modifiers of this kind precede the elements they modify, thus accounting for the contrasts between (25a,b) and (26a,b):

- (25) a. [Not [speaking English]] is a disadvantage.  
b. \*[Speaking not English] is a disadvantage.  
(26) a. Lee is believed [not [<sub>VP[*inf*]</sub> to like Kim]].  
b. \*Lee is believed to [<sub>VP[*inf*]</sub> like not Kim].

And *not*'s lexical entry includes a constraint ensuring that the VP it modifies is nonfinite:

- (27) a. \*Pat [not [<sub>VP[*fin*]</sub> left]].  
b. \*Pat certainly [not [<sub>VP[*fin*]</sub> talked to me]]  
c. \*Pat [not [<sub>VP[*fin*]</sub> always agreed with me]].  
(28) a. I saw Pat acting rude and [not [<sub>VP[*prp*]</sub> saying hello]].  
b. I asked him to [not [<sub>VP[*bse*]</sub> leave the bar]].  
c. Their having [not [<sub>VP[*psp*]</sub> told the truth]] was upsetting.

Syntactic evidence exists to confirm the indicated constituency in most cases, e.g. the possibility of *it*-clefts and *wh*-clefts with the negated VPs as focus:<sup>12</sup>

- (29) a. It's [not being invited to the party] that they resent.  
b. It's [not to be invited to the party] that they prefer.

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<sup>12</sup>Notice, however, that the VP complements of auxiliary verbs do not allow clefting and hence cannot provide further support for the relevant VP structures:

- (i) \*It's [(not) go to the party] that they should.  
(ii) \*It's [(not) been to the party] that they must have.  
(iii) \*It's [(not) going to the party] that they were.  
(iv) \*What they should is [(not) go to the party].  
(v) \*What they must have is [(not) been to the party].  
(vi) \*What they were was [(not) going to the party].

- (30) a. What they resented was [not being invited to the party].  
 b. What they resented was [not to be invited to the party].

It is an important semantic fact that the scope of a modifier adjoined to a VP always includes that VP. This Scope Locality Principle is illustrated in (31):

- (31) **Scope Locality Principle:**  
 a. Kim [never [said you were invited]]. (**never(said(invited...))**;  
 \***said(never(invited...))**)  
 b. Kim [apparently [always [walks to work]]]. (**apparently(always(walk...))**;  
 \***always(apparently(walk...))**)

Moreover, VP-adjoined modifier can never outscope a higher verb. Therefore, in examples like (32a–d), the finite verb always outscopes the adverb:

- (32) a. Kim seems [never [to be alone]].  
 b. Kim seems [not [to like anchovies]].  
 c. Pat considered [always [doing the homework assignments]].  
 d. Pat considered [not [doing the homework assignments]].

The lexical entry for *not* (like that of any scopal modifier) thus includes the information that the VP it modifies is its semantic argument.

Finally, note that the constituent modifier analysis of *not* predicts ambiguities like (33a,b):

- (33) a. Dana could [[not [register]] and [attend]] (, couldn't she?)  
 b. Dana could [not [[register] and [attend]]] (, couldn't she?)

It also correctly predicts the lack of ambiguity in examples like (34):

- (34) Dana could [[register] and [not attend]] (, couldn't she?)

These examples also illustrate a further argument for the constituent negation analysis. In non-‘challenge’ uses, the polarity of the tag must be opposite to that of the sentence to which it is adjoined. The auxiliary in the tags here is negative, indicating that the sentence it is adjoined to is positive, even though it contains *not*. This is the general pattern for constituent negation.

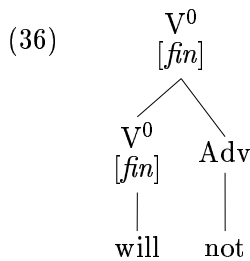
### 4.3 Finite Negation

Sentential negation involves the combination of a finite auxiliary verb with the adverb *not*:

- (35) Dominique could not open the door.

Di Sciullo and Williams have suggested (1987) that finite negation should be analyzed (as the exceptional orthography for *cannot* suggests) in terms of a morphological combination of a finite verb with *not*. Bresnan (2000) proposes that *not* is a modifier adjoined to the finite verb, as in (36):





But both these analyses seem inconsistent with examples like the following:

- (37) a. They will obviously not have time to change.  
 b. You are usually not thinking about the right problem.  
 c. They are obviously not good citizens.

Since the adverbs in these examples can outscope the preceding auxiliary (e.g. *obviously* and *not* can outscope *will* in (37a)), they cannot be VP-modifiers, or they would violate the Scope Locality Principle discussed in the previous section. In addition, the (non-challenge) tag question is formed with a positive auxiliary:

- (38) They will obviously not have time to change, will they?/\*won't they?

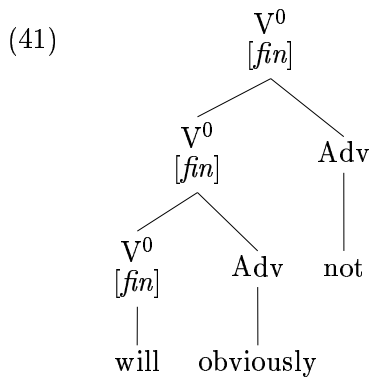
Thus, the occurrences of *not* in (37a-c) are instances of finite negation. This speaks strongly against the morphological incorporation analysis, as it would require, for example, that *will obviously not* and the like be treated as a single word. Moreover, if the negation *not* were to form a morphological unit with the preceding finite auxiliary, then we would expect, contrary to fact, that *not* should appear in inverted structures along with the verb, as illustrated in (39):

- (39) a. He [would not] leave the city.  
 b.\*[Would not] he leave the city?  
 c. He [need not] leave the city.  
 d.\*[Need not] he leave the city?

These inversions, though historically attested and apparently still acceptable in certain British dialects (cf. Warner 2000), are unacceptable in all American varieties that I am familiar with. I believe the only possible American renditions of examples like (39) are (40a,b):

- (40) a. Wouldn't he leave the city?  
 b. Didn't he need to leave the city?

Let us return to the adverb scope dilemma raised by (37). The verb modifier analysis assigns these examples a structure like (41):



But this, again because of the Scope Locality Principle, predicts the wrong scope, namely (42b), instead of the observed (42a):

- (42) a. **OBVIOUS (NOT (WILL ( ... )))**  
 b. **\*NOT (OBVIOUS (WILL ( ... )))**

The syntactic verb modifier analysis thus also appears inadequate on more than one count.

On the basis of diverse evidence, Kim and Sag (2002) argue that finite (sentential) negation should be distinguished from constituent VP-negation in terms of the structural contrast illustrated in (22) above. In fact, Kim and Sag argue that the negative adverb in finite negation is selected by the verb as a complement. The argument that they make for this analysis includes: (a) evidence for a ‘flat’ structure where *not* is the sister of the finite verb it cooccurs with; (b) the uniform ordering of finite negation in complement position; (c) the impossibility of iterating the negative adverb in finite constructions; (d) the lexically idiosyncratic nature of the scope of finite negation; (e) the possibility of stranding *not* only in finite instances of VP ellipsis; and (f) the requirements of a systematic account of ‘polarized’ finite auxiliaries. All of these phenomena (in addition to others involving French *pas*) are naturally accounted for if finite verbs in English (and French) are allowed to select a negative adverb as a complement.

Let us consider some of this evidence in more detail. The interaction of finite negation and inversion, as we have just seen, argues against a  $[V[fin] not]$  structure and the adverbial interpretation facts just considered speak against a  $[V[fin] [not VP]]$  structure (for finite negation). Another argument against the latter constituency is provided by contrasts like the following, which show that in VP-fronting constructions, finite negation remains unfronted:

- (43) You said they can’t join us, ...  
 a. \*and not join us they can \_\_ .  
 b. and join us they cannot \_\_ .

All of these data are consistent with a flat structure for finite negation, i.e. the structure in (22b), which would follow straightforwardly from a verb-complement analysis, as would the position of finite *not* (English complements uniformly appear in post-head position) and its lack of iterability.

The scopal idiosyncrasies of auxiliary negation are intriguing. We have already established that constituent negation always takes narrow scope with respect to a finite auxiliary, as in (44a-c):

- (44) a. Paul could [not accept the offer], couldn't he?  
 b. They will [not accept the offer], won't he?  
 c. Kim may [not drink the wine] if she doesn't like it. 'Kim is permitted not to drink.'

But the scope of finite negation varies with the choice of auxiliary. For example, finite *not* outscopes *can* or *will*, but is outscoped by deontic modals like *may* or *must*:

- (45) a. My parents cannot accept that. [ $\neg$  M]  
 b. Chris will not do that, will she? [ $\neg$  M]  
 (46) a. Kim may not drink the wine if she doesn't feel like it. 'Kim possibly won't drink the wine.' [M  $\neg$  ]  
 b. Hilary must not accept the offer. [M  $\neg$  ]  
 c. They should not have been drinking. [M  $\neg$  ]

These contrasts also show themselves in the interaction of modals with other negative adverbs, e.g. *never* and also with positive adverbs that are permitted in post-auxiliary position:

- (47) a. Kim must never accept the offer. [M  $\neg$  ]  
 b. My parents can never accept that. [ $\neg$  M]  
 (48) a. Kim must always accept the offer. [M ADV ]  
 b. My parents can always buy a condo. [ADV M]

Though the interaction of modals and post-modal adverbs is fixed, it seems that modals exhibit variable scope if negation is introduced nominally. The following examples are ambiguous:

- (49) a. &Sandy must accept nothing.  
 b. &Sandy will accept nothing.  
 (50) a. &Nobody must visit Pat.  
 b. &Nobody will visit Pat.

This last pattern is of course the more familiar one, as we expect in general to find scopal ambiguity.

The modal-adverb interactions are only partly predictable on semantic grounds. In an important study, Warner (2000) discusses in detail the following distribution of verbs:

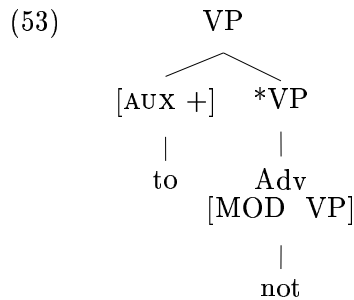
- (51) a. *can, could, may* (deontic), *need, dare, will, would* [ $\neg$  M]  
 b. *may* (epistemic), *might* (epistemic), *must, shall, ought, should* [M  $\neg$ ]

Given the paucity of this domain, it is perhaps unclear whether there is any regularity here to be embodied in a grammar.<sup>13</sup> But the motivation for a lexical analysis is clear. A modal can select for a negative adverb as a complement and assign it a fixed scope.<sup>14</sup> By contrast, negative nominals involve no idiosyncratic selection and are free to take scope in accordance with general interpretative principles.

The last motivation for the ‘adverb-as-complement’ analysis that I will discuss here concerns the interaction of negation and VP Ellipsis. In clear cases of constituent negation, VP Ellipsis is impossible, as discussed by Kim and Sag (1995, 2002) and by Warner (2000):

- (52) a. \*Leaving now would make sense; [not \_\_ ] would make more sense.  
 b. \*Kim said we should have heard the news, but Lee said that we should have [not \_\_ ]. (cf. ... that we should [not [have \_\_ ]])  
 c.\*?Mom said that I had to clean up my room, but Dad said I could [not \_\_ ] and still go to the party. (Carl Pollard, p.c.)  
 d. \*They haven’t filed their income tax, and to have [not \_\_ ] means they’re in big trouble. (cf. ... and [not [to [have \_\_ ]]] means ....)  
 e. Kim wants me to go; \*Sandy wants me [to [not \_\_ ]].  
 (cf. Sandy wants me [not [to \_\_ ]].)

One appealing way of accounting for these facts is to assume, following Sag and Fodor (1994), and Sag (2000), that VP Ellipsis involves the absence of an auxiliary’s complement, rather than the presence of a phonetically empty. If ellipsis involves no phonetically unrealized constituents, then the ungrammaticality of these examples is a simple consequence of there being no VP constituent for an adverb to adjoin to. That is, without an element to serve as the syntactic head, there is no way to construct a head-modifier structure like the indicated one in (53):<sup>15</sup>



<sup>13</sup>Warner (2000) offers some explicit proposals for expressing semiregularities in this domain in terms of a lexical type hierarchy.

<sup>14</sup>Clearly, this analysis must be extended to allow positive post-auxiliary adverbials to be selected, as well.

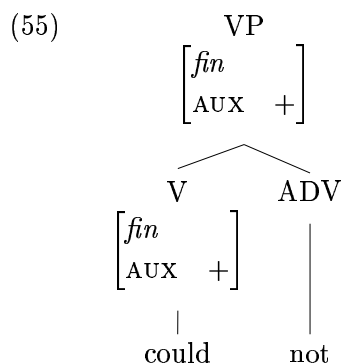
<sup>15</sup>Sag and Fodor (1994), Pullum (1997), and Sag (2000) reexamine the putative independent empirical motivations for *wh*-traces, including auxiliary contraction, *wanna* contraction, and constraints on the positioning of floated quantifiers. This is not meant to legislate against all phonetically empty elements. I regard the matter entirely as an empirical question. For example, Bender (2001) appears to have established the existence of a phonetically empty copula in African American Vernacular English. Similarly, Müller (to appear?) argues for the superiority of an analysis of German ‘partial VP fronting’ in terms of a phonetically unexpressed verbal element.

These predictions of the traceless ellipsis theory are strikingly accurate.

Although adverbs cannot directly precede an ellided VP, as we have just seen, in the case of finite negation, *not* can precede an ellipsis site (Sag 1976, Ernst 1992):

- (54) a. Although you want to have another cookie, you may not \_\_ .  
 b. Please do that! I will not \_\_ .

The stranding of *not* in VP Ellipsis appears to be possible only when the preceding verb is finite and only when *not* is not performing constituent negation. If the *not* were treated as a constituent modifier in (54), then the observed contrast would be quite surprising, as in both cases there would be no VP for the negation to modify. However, in the flat structure proposed above for sentential negation, *not* is a sister of the finite auxiliary and may simply cooccur with ellipsis of the auxiliary's complement, as illustrated in (55):<sup>16</sup>



Thus, all auxiliary verbs in English participate in VP Ellipsis, which should be treated as simple omission of the auxiliary verb's complement.<sup>17</sup> By assuming the absence of empty constituents, we account for the impossibility of stranding constituent negation in ellipsis (e.g. the data in (52)), as explained above. This of course still allows for examples like (56a,b), where the VP properly containing the ellipsis site is negated:

- (56) a. Maybe they should be content, but they seem [to [not [be \_\_ ]]].  
 b. Kim seems to have been satisfied, but he could have [not [been \_\_ ]].

Further evidence that the possibility of *not*-stranding VP Ellipsis is possible only with finite negation is provided by examples like the following:

- (57) a. Could Paul actually do that? No, he could not \_\_ .  
 b. They will attend the reception, but we will not \_\_ .

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<sup>16</sup>There is a much-discussed further issue about whether adverbs other than *not* can be stranded in VP-Ellipsis, as in examples like (i).

(i) Kim has written a novel, but Lee has never \_\_ .

See Baker 1971, 1981, Sag 1981, Ernst 1983, Kim 2000, and Abels 2003. Newmeyer (in press) argues (*pace* essentially all previous analysts) that such examples should be considered grammatically well-formed.

<sup>17</sup>Following Bresnan (1976), Sag (1976), and Gazdar et al. (1982), I assume that there is always an auxiliary element that 'licenses' VP Ellipsis.

In both these examples, the negation outscopes the modal, which, as we have seen, is never possible with constituent negation. In fact, we see the normal range of scope idiosyncrasy, exactly as predicted if all *not*-stranding VP Ellipsis involves finite auxiliaries that cooccur with their adverb complement, leaving their VP complement unexpressed:

- (58) a. Sandy may not accept the offer and Kim may not \_\_\_ either. ‘Kim possibly won’t accept.’ [ $\neg$  M]  
 b. They want Paul to accept the offer, but he must not \_\_\_. ‘he is obligated not to accept the offer.’ [M  $\neg$ ]  
 c. Should they drink? They should not \_\_\_. ‘They are obligated not to drink.’ [M  $\neg$ ]

In sum, there is considerable and often subtle evidence in favor of a two-way distinction between nonfinite constituent negation and an analysis of finite negation in terms of an adverb-selecting valence pattern for finite auxiliary verbs.

## 5 Inversion

Head movement analyses of inversion have accounted for the basic pattern of alternation: tensed auxiliary verbs appear in situ and, when other factors permit, they appear in inverted position. In nontransformational accounts, e.g. those of Gazdar et al. (1982) or Bresnan (2000), there are two possible positions where finite auxiliaries can be directly realized. Interacting factors constrain the choice.

Yet in inversion too, there is a certain degree of lexical idiosyncrasy that stands as a challenge for any analysis of EAS. First, there is the following contrast (due to Emonds, as cited by Chomsky (1981: 209)):

- (59) a. I shall go downtown.  
 b. Shall I go downtown?

Here there is a semantic difference between the auxiliary verb *shall* in (59a) and the one in (59b): the former conveys simple futurity whereas the latter has a deontic sense. One might think this difference in interpretation has something to do with interrogativity, but, interestingly, there is a further fact about such contrasts not noticed by Emonds, Chomsky, or Gazdar et al. The simple futurate reading is possible in an uninverted embedded interrogative like (60):

- (60) [To a fortune teller:]  
 a. Tell me whether I shall go downtown.  
 b. I am asking you whether I shall go downtown.

Thus it seems that the futurate *shall* in (59a) must indeed be barred from inverted structures and the deontic *shall* in (59b) must be restricted to inverted structures.<sup>18</sup>

Similarly, the following pair exhibits a scope difference (examples due to John Payne, as cited by Gazdar et al. (1985: 64)):

- (61) a. Kim mightn’t go. [M  $\neg$ ]

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<sup>18</sup>It should be noted that there is considerable dialectal variation regarding *shall*.

- b. Mightn't Kim go? [ $\neg$  M]

In (61a), the modal has scope over the negation ('It is possible that Kim might not go. '), whereas in (61b), only the reverse scope is possible ('Is it not the case that possibly Kim will go?'). Here, however, it seems that interrogativity, rather than inversion is determining the scope, as (61b) is paralleled by (62):

- (62) We wondered if we mightn't go with them? [ $\neg$  M]

Further, there are inflected forms that only occur in inversion constructions, e.g. the first person singular negative contracted form of the copula illustrated in (63):<sup>19</sup>

- (63) a. \*I aren't going.  
b. Aren't I going?

On the other hand, there are some finite auxiliary verbs that cannot appear in inverted position. For example *better*, discussed by Gazdar et al. (1982):

- (64) a. I better get out of here!  
b. \*Better I get out of here?

On distributional grounds, *better* is arguably a finite auxiliary. It projects a finite clause, for example. Though *better* cannot be inverted in questions (or other inversion constructions), it can participate in finite negation:

- (65) You better not (cry).

As we saw earlier, VP ellipsis can strand *not* only when it expresses finite negation.

On the basis of examples like (66), one might think that a covert *have* is involved in the synchronic analysis of *better*:

- (66) You better do that, hadn't/\*bettern't you?

But the possibility of ellipsis illustrated in (65) all but rules out an analysis of *better* in terms of *had*-deletion (or the like), for such an analysis would presumably entail that *not* in (66) is a VP modifier, which would leave the possibility of VP Ellipsis unexplained.

Finally, Bresnan (2000) observes that in many varieties of American English, inversion and finite negation are incompatible:

- (67) a. %Will Jones not stop singing?  
b. %Have your parents not been to Prague?

The only corresponding sentences in these varieties (which include most spoken American vernaculars<sup>20</sup>) are those shown in (68):

- (68) a. Won't Jones stop singing?  
b. Haven't your parents been to Prague?

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<sup>19</sup>For discussion, see Palmer 1968, Hudson 1977, 2000, Gazdar et al. 1982, and Bresnan 2000.

<sup>20</sup>As one of my anonymous reviewers suggests, it may be that such inversions are restricted to formal register, even in British dialects.

Since, as we have seen, finite negation is plausibly treated via complement selection. These data, like the others considered in this section, could be described if invertibility were also a lexically controllable property.

My analysis follows a tradition in which inversion constructions are distinguished by the feature specification [INV +]. The various quirks are then analyzed in terms of positive or negatice lexical specifications for this feature.

## 6 UnAmerican Auxiliary Do

Transformational approaches developed in a rich tradition originating with Chomsky 1955, have assumed that the auxiliary *do* is transformationally inserted when a tense element – pressed into service as an independent syntactic atom – is ‘stranded’ by the application of transformational rules. Such rule applications are involved in the analysis of all the NICER properties, and hence *do* appears in precisely those environments.<sup>21</sup> It is interesting, therefore, to consider the distribution of *do* in British English and related varieties. The following examples are discussed by Miller (2002):

- (69) A: Does Mr Charley Newton live here?  
B: He might **do**.  
(BBC, *Westway*, 23 nov 2001)
- (70) For one thing, a postponement will be seen worldwide as a declaration that Britain is in crisis; tourism would suffer even more than it is **doing** already.  
(*The Guardian*, 24/03/2001)
- (71) So far, everything that could go wrong has **done**. (*The Guardian*, 26/05/2001)
- (72) PM: This wouldn’t appeal to you?  
It might have **done**. (British speaker)
- (73) Miss Chadwick indeed looked ten years older than she had **done** on the day of the opening of term. (Agatha Christie. *Cat Among the Pigeons*. Fontana, 1962, Harper Collins, 1959, p. 190)

These forms of *do* appear only in the context of VP Ellipsis, as the crashingly ungrammatical examples in (74) demonstrate:

- (74) a. \*She might do read detective novels.  
b. \*He might have done broke(n) it.  
c. \*It was doing raining.

The transformational analysis provides no obvious way of generalizing to these examples of ‘unAmerican nonfinite *do*’: Under reasonable assumptions about the grammar of *do* and tense, they simply have no interaction here. Hence *do*-support will have nothing to do with the analysis of (69)–(73). But these examples, as Miller argues, involve nonfinite forms of the same auxiliary *do* that in other varieties exhibits only

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<sup>21</sup>For a survey of the issues surrounding this tradition of analysis, the reader should consult Lasnik et al. 2000.



finite forms. A lexical analysis of *do* is preferable, because it provides the basis for a natural account in terms of variations in lexical form, an independently well-established kind of dialectal variation. The nonfinite forms of auxiliary *do* also show that there are lexical forms in certain varieties of English which require VP Ellipsis. Other forms, e.g. *being* (in all varieties, as far as I am aware) are systematic exceptions to VP Ellipsis:<sup>22</sup>

- (75) a. \*Kim wasn't being careful, but Pat wasn't being.  
 b. \*Kim wasn't being careful, but Pat wasn't being.

## 7 The Basic Analysis of Auxiliaries

- (76) a. The feature AUX distinguishes auxiliary constructions from other constructions (rather than distinguishing auxiliary verbs from other verbs, as in previous analyses).  
 b. The non-auxiliary verbs are lexically specified as [AUX -].  
 c. Finite auxiliary verbs are lexically unspecified for the feature AUX.

- (77) [ELL+/-]: elliptical (lacking an XP complement) or not,  
 [INV+/-]: appears in initial ('inverted') position or not,  
 [POL+/-]: 'polarized' or not. (Halliday 2004)

- (78) 
$$\left[ \begin{array}{l} \text{FORM} \langle \textit{happen} \rangle \\ \text{SYN} \left[ \begin{array}{l} \text{HEAD} \left[ \begin{array}{l} \textit{verb} \\ \text{AUX} \text{ --} \\ \text{INV} \text{ --} \\ \text{POL} \text{ --} \\ \text{ELL} \text{ --} \end{array} \right] \\ \text{VALENCE} \left\langle \square, \left[ \begin{array}{l} \text{VP} \\ \text{VFORM} \textit{ inf} \\ \text{VALENCE} \langle \square \rangle \end{array} \right] \right\rangle \end{array} \right] \end{array} \right]$$

- (79) 
$$\left[ \begin{array}{l} \text{FORM} \langle \textit{can} \rangle \\ \text{SYN} \left[ \begin{array}{l} \text{HEAD} \left[ \begin{array}{l} \textit{verb} \\ \text{POL} \text{ --} \\ \text{ELL} \text{ --} \end{array} \right] \\ \text{VALENCE} \left\langle \square, \left[ \begin{array}{l} \text{VP} \\ \text{VFORM} \textit{ base} \\ \text{VALENCE} \langle \square \rangle \end{array} \right] \right\rangle \end{array} \right] \end{array} \right]$$

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<sup>22</sup>I follow Warner 2000. These contrasts were first noted by Akmajian and Wasow (1972).

Of course these complex details are not stipulated in individual lexical entries. Rather, they are theorems of the logic of the lexicon. I assume the lexicon includes principles like the following:

- (80) a. *nonauxverb-lxm(happen)*  
 b. *nonauxverb-lxm(X) ⇒ verb-lxm(X)*  
 c. 
$$verb-lxm \Rightarrow \left[ \text{SYN} \left[ \text{HEAD} \left[ \begin{array}{l} verb \\ POL - \\ ELL - \end{array} \right] \right] \right]$$
  
 d. 
$$nonauxverb-lxm \Rightarrow \left[ \text{SYN} \left[ \text{HEAD} \left[ \begin{array}{l} AUX - \\ INV - \end{array} \right] \right] \right]$$

- (81) a. *auxverb-lxm(can)*  
 b. *auxverb-lxm(X) ⇒ verb-lxm(X)*

(82) Theory of finite auxiliaries:

$$\left[ \begin{array}{l} word \\ \text{SYN|CAT} \left[ \begin{array}{l} \text{VFORM} \quad fin \\ \text{AUX} \quad + \end{array} \right] \end{array} \right] \Rightarrow \left[ \text{SYN|CAT} \left[ \left\{ \begin{array}{l} \text{ELL} \\ \text{POL} \\ \text{INV} \end{array} \right\} + \right] \right]$$

(83) Theory of *do*:

*do* is lexically marked as [AUX +] and it has only finite forms in American English. Hence, by (82), it must be [ELL+], [INV+], or [POL+].

## Partial List of References

- Abels, Klaus. 2003. Auxiliary Adverb Word Order Revisited. In Elsi Kaiser and Sudha Arunachalam, eds., *Proceedings of the 26th Annual Penn Linguistics Colloquium. Penn Working Papers in Linguistics*, Vol. 9.1. Philadelphia: Penn Linguistics Club.
- Baker, C. L. 1981. Auxiliary-Adverb Word Order. *Linguistic Inquiry* 12: 309–315.
- Bresnan, Joan. 2000. Optimal Syntax. In *Optimality Theory: Phonology, Syntax, and Acquisition*, edited by Joost Dekkers, Frank van der Leeuw and Jeroen van de Weijer. Pp. 334–385. Oxford: Oxford University Press.
- Bresnan, Joan. 2001. Explaining Morphosyntactic Competition. In *Handbook of Contemporary Syntactic Theory*, edited by Mark Baltin and Chris Collins, 11–44. Oxford: Blackwell Publishers.
- Brown, Keith. 1991. Double modals in Hawick Scots. In *Dialects of English. Studies in Grammatical Variation*, edited by Peter Trudgill and J.K. Chambers, pp. 74–103. London: Longman.
- Chomsky, Noam. 1955. *The Logical Structure of Linguistic Theory*. Published in 1975 by Plenum (New York).

- Chomsky, Noam. 1957. *Syntactic Structures*. Mouton: The Hague.
- Chomsky, Noam. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.
- Di Sciullo, Anna M. and Edwin Williams. 1987. *On the Definition of Word*. Cambridge, MA: MIT Press.
- Dixon, R.M.W. 1982. Semantic Neutralisation for phonological reasons. In *Where Have All the Adjectives Gone? and other essays in Semantics and Syntax*. 235-238. Berlin: Mouton.
- Ernst, Thomas. 1983. More on Adverbs and Stressed Auxiliaries. *Linguistic Inquiry* 14: 542-549.
- Fillmore, Charles. 1999. 'Inversion and Constructional Inheritance'. In G. Webelhuth, J.P Koenig, and A. Kathol (eds.), *Lexical and Constructional Aspects of Linguistic Explanation*. Stanford: CSLI Publications. Pp. 113-128.
- Gazdar, Gerald, Ewan Klein, Geoffrey K. Pullum, and Ivan Sag. 1985. *Generalized Phrase Structure Grammar*. Cambridge, MA: Harvard University Press.
- Gazdar, Gerald, Geoffrey K. Pullum, and Ivan Sag. 1982. Auxiliaries and Related Phenomena in a Restrictive Theory of Grammar. *Language* 58: 591-638.
- Grimshaw, Jane. 1997. Projection, Heads, and Optimality. *Linguistic Inquiry* 28.3: 373-422.
- Halliday, M.A.K. 2004. *An Introduction to Functional Grammar*. Third Edition. Revised by Christian M. I. M. Matthiessen. London: Arnold.
- Hudson, Richard. 1976. *Arguments for a Non-transformational Grammar*. Chicago: University of Chicago Press.
- Hudson, Richard. 2000. *\*I amn't*. *Language* 76.2: 297-323.
- Kim, Jongbok. 2000. *The Grammar of Negation: A constraint-based approach*. Dissertations in Linguistics Series. Stanford: CSLI Publications.
- Kim, Jong-Bok, and Ivan A. Sag. 1995. The Parametric Variation of English and French Negation. In *Proceedings of the Fourteenth Annual Meeting of the West Coast Conference on Formal Linguistics*. Stanford: SLA, CSLI Publications.
- Kim, Jong-Bok, and Ivan A. Sag. 2002. Negation Without Head Movement. *Natural Language and Linguistic Theory* 20.2: 339-412.
- Lasnik, Howard. 1995. Verbal Morphology: *Syntactic Structures* Meets the Minimalist Program.
- Klemola, Juhani. 1998. Semantics of *DO* in South-western Dialects of English. In Tieken-Boon van Ostade, Ingrid, van der Wal, Marijke, van Leuvensteijn, Arjan, eds., *DO in English, Dutch and German: History and Present-Day Variation*. Münster: Nodus Publikationen. Pp. 25-51.
- Lasnik, Howard (with Marcela Depiante and Arthur Stepanov). 2000. *Syntactic Structures Revisited*. Cambridge, MA: MIT Press.
- Marcus, Gary, Athena Vouloumanos, and Ivan A. Sag. 2003. Does Broca's Play by the Rules? *Nature Neuroscience* Vol. 6, No. 7: 652-653.

- McCawley, James. D. 1971. Tense and Time Reference in English. In C. Fillmore and D. T. Langendoen (eds.).
- Miller, Philip. 2002. Les emplois non finis de *do* auxiliaire. (Communication présentée à l'atelier de linguistique du Congrès d'Angers de la SAES, le 19 et 20 mai 2000.) In Claude Delmas (éd.), *Construire et reconstruire en linguistique anglaise: Syntaxe et sémantique*, CIEREC: Travaux 107, publications de l'Université de Saint-Etienne, 2002, pp. 185-198.
- Newmeyer, Frederick J. In press. Negation and Modularity. To appear in Betty Birner and Gregory Ward, eds., *Drawing the Boundaries of Meaning: Neo-Gricean Studies in Pragmatics and Semantics in Honor of Laurence R. Horn*. Amsterdam: Benjamins.
- Palmer, F. R. 1968. *A Linguistic Study of the English Verb*. Coral Gables: U. Miami Press.
- Pollard, Carl and Ivan Sag. 1994. *Head-Driven Phrase Structure Grammar*. Chicago: University of Chicago Press and Stanford: CSLI Publications.
- Potsdam, Eric. 1997. English Verbal Morphology and VP Ellipsis. *Proceedings of NELS 27*. Amherst, MA: GLSA. Pp. 353-368.
- Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech and Jan Svartvik. 1985. *A Comprehensive Grammar of the English Language*. London: Longman.
- Sag, Ivan A. 1980. A Further Note on Floated Quantifiers, Adverbs, and Extraction Sites. *Linguistic Inquiry* 11.1: 255-257.
- Sag, Ivan. 2000. Another Argument Against *Wh*-Trace. Jorge Hankamer Webfest. <http://ling.ucsc.edu/Jorge/>
- Sag, Ivan A. and Janet Fodor. 1994. Extraction Without Traces. In *Proceedings of the West Coast Conference on Formal Linguistics 13*. Stanford: SLA, CSLI Publications.
- Schütze, Carson T. 2004. Synchronic and Diachronic Microvariation in English *do*. *Lingua* 114: 495-516.
- Vikner, Sten. 2001. V-to-I Movement and *Do*-Insertion in Optimality Theory. In Géraldine Legendre, Jane Grimshaw, and Sten Vikner, eds., *Optimality-theoretic Syntax*. Cambridge, MA: MIT Press.
- Warner, Anthony. 1993. *English Auxiliaries: Structure and History*. Cambridge: Cambridge University Press.
- Warner, Anthony. 2000. English Auxiliaries without Lexical Rules. In R. Borsley, ed., *Syntax and Semantics Volume 32: The nature and function of syntactic categories*. San Diego and London: Academic Press. Pp. 167-220.
- Zwicky, Arnold M. and Geoffrey K. Pullum. 1983. Cliticization vs. Inflection: English n't. *Language* 59: 502-513.