line Wiltshire, Randolph Graczyk, and Bradley Music, 342–365. Chicago: University of Chicago, Chicago Linguistic Society.

Postal, Paul. 1966. On so-called pronouns in English. In *Modern studies in English,* ed. by David Reibel and Sanford Schane, 201–223. Englewood Cliffs, N.J.: Prentice-Hall.

Ritter, Elizabeth. 1995. On the syntactic category of pronouns and agreement. *Natural Language & Linguistic Theory* 13: 405–443.

Rullmann, Hotze. 2003. Bound-variable pronouns and the semantics of number. In *Proceedings of the Western Conference on Linguistics (WECOL) 2002,* ed. by Paivi Koskinen. Fresno: California State University, Department of Linguistics.

Sportiche, Dominique. 1985. Remarks on crossover. *Linguistic Inquiry* 16:460–469.

Vallée, Richard. 1996. Who are we? *Canadian Journal of Philosophy* 26:211–230.

Zwicky, Arnold M. 1977. Hierarchies of person. In *Papers from the Thirteenth Regional Meeting, Chicago Linguistic Society,* ed. by Woodford A. Beach, Samuel E. Fox, and Shulamith Philosoph, 714–733. Chicago: University of Chicago, Chicago Linguistic Society.

Coordination of Verbs and Two Types of Verbal Inflection

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Recent studies of the relationship between verbal morphology and syntax have led to two major approaches to verbal inflection in English. In one approach, proposed by Chomsky (1995), the inflectional morpheme is considered to be part of the verb that enters syntactic derivation. Thus, this approach claims that the finite verb enters syntactic derivation fully inflected and its inflectional features are licensed by a checking relation with the (abstract) functional head T. The other approach, argued for by Halle and Marantz (1993), Bobaljik (1994), and Lasnik (1995), claims that the finite verb is bare (uninflected) in syntax, with the inflectional morpheme located in T, and that the verbal root is merged with the inflectional morpheme in the phonological component (i.e., in the derivation from Spell-Out to PF) under the condition of adjacency.[1]

I wish to thank Jun Abe and Kyle Johnson for useful discussion, and Hiroshi Aoyagi, Koji Hoshi, Daisuke Inagaki, Mikinari Matsuoka, Joachim Sabel, Akira Watanabe, and two anonymous reviewers for helpful comments on earlier versions of this squib.

[1] Here we are concerned with main verbs. The treatment of auxiliaries differs among the advocates for the latter approach (see the works cited in the text). The advocates for both approaches all agree that whereas English main verbs stay within vP, English auxiliaries overtly raise to T, to account for the well-known differences between main verbs and auxiliaries in the language.

In this squib, I will point out that the simple fact that English finite verbs can be conjoined favors the approach in which the inflectional morpheme is regarded as part of V. I will then consider Japanese in this light, showing that it does not allow finite verbs to be conjoined and that when verb coordination takes place, the first conjunct must be a bare verb. I will argue that these striking properties of Japanese arise because it employs the mechanism of verbal inflection by which the inflectional morpheme is located in T in syntax and is merged with the adjacent verb in the phonological component. The emerging picture is thus that the two types of verbal inflection are both necessary, utilized in different languages.

1 Coordination of Verbs in English and Japanese

In English, various categories can be conjoined by *and.* Among them are finite verbs, as illustrated in (1).

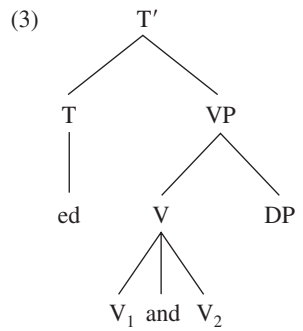
(1) a. John [$_V$ read] and [$_V$ reviewed] the article.
b. John [$_V$ bought] and [$_V$ ate] an apple.

These examples pattern with examples involving coordination of other categories such as N(P)s and DPs, as in (2).

(2) a. big [$_{N(P)}$ cats] and [$_{N(P)}$ dogs]
b. [$_{DP}$ the big cats] and [$_{DP}$ the small dogs]

The simple fact that finite verbs can be conjoined poses a problem for the claim that English verbs are separated from their inflectional morphemes in syntax, the latter being located in T.[2] Under this approach, the examples in (1) have the partial structure in (3) (I ignore vP).

(3)



[2] Kayne (1994:59–63) suggests that Universal Grammar does not allow heads to be coordinated and that cases like (1) should be analyzed as involving right node raising, along the lines of (i) (where [e] in the first conjunct is a deleted object), rather than coordination of finite verbs.

(i) John read [e]$_i$ and reviewed [the article]$_i$.

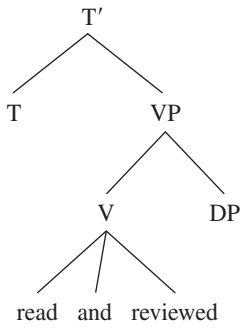
However, not all *V and V* cases can be analyzed in this way. See the discussion below and footnote 7.

In (3), V_1 and V_2 are bare verbs and the tense morpheme is in T. This structure cannot yield the surface form *read and reviewed,* where *read* and *reviewed* are both inflected for tense, simply because neither (past tense) *read* nor *reviewed* is a syntactic constituent. Recall that under the analysis being considered the tense morpheme, located in T in syntax, is merged with the bare verb only in the phonological component. Given the standard requirement that conjoined elements be syntactic constituents, there are no verbal heads with tense morphology that can be conjoined in syntax.

One might suggest that the surface form *V and V* where both Vs are inflected results from applying morphological rules in the phonological component. Such rules would have to ensure that the tense morpheme, when merged with a verb coordination, necessarily ends up on both conjuncts.

Although such a solution may work technically, the relevant fact receives a much simpler account under the approach in which all finite verbs in English are fully inflected when they enter syntactic derivation. Here, the cases in (1) can have the structure shown in (4).

(4)



On this view, the inflectional features of the conjoined verbs are licensed by feature checking with T, in a way parallel to checking of the Case and ϕ-features of the DP conjuncts in (5).[3]

(5) John ate an apple and a banana.

This approach requires no additional mechanisms.

The simplest view of morphology predicts that the syntactic structure in (3), if really available, would yield a surface string in which the inflectional morpheme is attached to the conjunct to which it is adjacent, namely, V_1, and V_2 remains bare. I will claim that this is in fact the case in Japanese.

[3] A reviewer points out that Case is not always checked for both DPs in DP-coordination, thus yielding, in subject position, *him and I* as well as *he and I.* On the other hand, checking of *wh*-features works differently (e.g., *What and what (else) did Robin buy?* vs. **What and pencils did Robin buy?*; see Zoerner 1995). Exactly how checking is carried out in cases involving coordination is a nontrivial problem that I put aside here.

We can see parallelisms between English and Japanese with respect to coordination of N(P)s and of DPs. (6a) patterns with (2a) and (6b) with (2b).

(6) a. ookii [neko]-to [inu]
big cat-and dog
b. [sono ookii neko]-to [sono tiisai inu]
that big cat-and that small dog

However, things are not as straightforward in the case of verb coordination. There are two ways to translate English (7) into Japanese. They are given in (8).

(7) John copied and filed the paper.

(8) a. John-ga sono ronbun-o kopiisi fairusita.
John-NOM that paper-ACC copy filed
b. John-ga sono ronbun-o kopiisi-te fairusita.
John-NOM that paper-ACC copy-ing filed

Note first that the conjunction *to* used in (6) cannot be used in these examples. This is due to a general morphological restriction on *to,* which is a bound morpheme, to the effect that it must attach to a nominal category. As a result, the two verbs are simply juxtaposed in (8a–b). Another point to be noted is that whereas the second verb in (8a–b) is inflected (for tense), the first verb is not: in (8a), it takes a bare (uninflected) form; in (8b), it takes a gerundive/participial form. Therefore, (8a–b) do not involve coordination of finite verbs.

In fact, the example in (8b) cannot be a case of coordination. Given that the first verb takes a gerundive/participial form, it seems reasonable to analyze it on a par with the italicized parts in (9).

(9) a. [$_{\alpha}$ *Entering* the room], John sat down.
b. John left [$_{\alpha}$ after *speaking* to Mary].

If so, it is possible to treat the italicized part in (10) as an adjunct clause similar to α in (9).

(10) John-ga *sono ronbun-o kopiisi-te* fairusita. (= (8b))
John-NOM that paper-ACC copy-ing filed

Japanese has both null subjects and null objects. We might then claim that the adjunct clause contains a phonetically null subject coreferential with the matrix subject and that the matrix clause contains a null object coreferential with the object in the adjunct clause. This analysis is shown in (11), using English words for convenience.

(11) [$_{TP}$ John$_i$ [$_{T'/VP}$ [pro$_i$ that paper$_j$ copying] [$_{T'/VP}$ pro$_j$ filed]]].

On the other hand, the case in (8a) seems to involve coordination of verbs. But, as noted above, the first conjunct there is a bare verb. In this connection, it is important to observe that Japanese does have a construction where two inflected verbs appear to be conjoined, as in (12).

(12) John-ga sono ronbun-o kopiisita sosite fairusita.
John-NOM that paper-ACC copied and filed

Unlike *to* 'and' in (6), *sosite* is a free morpheme.[4] The case in (12) seems to involve coordination of finite verbs, at least on the surface. However, there is a strong sense that it consists of two complete sentences rather than one sentence with coordinated verbs. Native speakers of Japanese would not give (12) as a natural translation of (7). (12) feels more like (13).

(13) John copied the paper and he filed it.

Since Japanese allows both subject and object to be phonetically null, it is possible for (12) to involve coordination of two complete sentences, the second of which has a null subject and object, as illustrated in (14).[5]

(14) $[_{TP}$ John$_i$ that paper$_j$ copied] and $[_{TP}$ pro$_i$ pro$_j$ filed].

Thus, of the three representative cases in (8a–b) and (12), only the case in (8a) appears to involve true coordination of verbs. These intuitions in fact receive firm empirical support from consideration of interpretive properties of the English word *different* discussed by Carlson (1987).

Carlson observes that *different* (and *same*) can have two readings. Consider first (15).

(15) Smith went to a different place on his vacation this year.

The word *different,* by its semantic nature, implies a comparison between two things. In (15), the items compared are something referred to in the sentence (i.e., a particular place) and something that is understood by the listener as having already been contextually defined.

[4] *Sosite* can also be used optionally in (8a–b). It is obligatory in (12).

[5] Another possibility for (12), brought to my attention by Joachim Sabel, is that both *John-ga* 'John-NOM' and *sono ronbun-o* 'that paper-ACC' have undergone across-the-board scrambling out of the conjoined sentences, as shown in (i).

(i) John$_i$ the paper$_j$ $[_{TP}[_{TP}$ t$_i$ t$_j$ copied] and $[_{TP}$ t$_i$ t$_j$ filed]].

An obstacle to this analysis is that the following example does not have an interpretation where pro in the scrambled object is bound by the subject of the second clause:

(ii) [pro hahaoya-ni] subete-no otokonoko-ga denwasita sosite
mother-DAT all-GEN boy-NOM called and
subete-no onnanoko-ga atta.
all-GEN girl-NOM met
'Every boy called his mother and every girl met him/her/them.'

Here pro can only be bound by the subject of the first clause; the sentence thus cannot mean that every girl *x* met *x*'s mother, which should be possible if [pro *hahaoya-ni*] had undergone across-the-board scrambling. This fact indicates that the object of the second clause is a pro, which in turn shows that (for whatever reasons) across-the-board scrambling is impossible in this construction.

Carlson calls this kind of reading a *sentence-external* reading of *different.*

Next, consider (16).

(16) a. Bob and Alice attend different classes.
b. Different dogs bit those two men.

These examples also have sentence-external readings. But they have another kind of reading as well. For example, (16a) can receive the following interpretation:

(17) Bob attends Biology 101 and Alice attends Philosophy 799.

Here what is being compared are the class Bob attends and the class Alice attends (and (16a) asserts that they are different). So in this case the meaning of the sentence itself provides a context for comparison. This is what Carlson calls a *sentence-internal* reading of *different.*

Carlson claims that a sentence-internal reading of *different* can only be licensed when the sentence denotes a plural (and distributive) eventuality (in Carlson's terms, eventuality is an intensional notion that classifies token events, which he assumes to be real entities of the world). Conjoined DPs and plural DPs allow the sentence to denote a plural eventuality, whereas singular DPs do not. Thus, the example in (15), lacking such licensing NPs, allows only a sentence-external reading, in contrast to the examples in (16).[6]

As Carlson notes, this property of *different* can be used as a diagnostic for conjoined structures. Carlson points out that factors other than conjoined/plural DPs can contribute to a sentence's denoting a plural eventuality and that conjoined verbs, for instance, can also license sentence-internal readings. The following examples show this:

(18) a. John saw and reviewed different films.
b. Different dogs chased and bit the cat.

This test therefore confirms the claim that finite verbs can be conjoined in English.[7]

[6] Consider (i), from Carlson 1987.

(i) John went to different places on his shopping trip.

Carlson points out that in addition to a sentence-external reading, (i) has a reading that must be set aside, namely, one where *different* means 'various'. Note that the fact that (i) lacks a sentence-internal reading indicates that the plurality of the noun that *different* modifies (i.e., *places* in (i)) does not make a sentence-internal reading possible.

[7] As mentioned in footnote 2, Kayne (1994) claims that Universal Grammar disallows coordination of heads (including verbs), suggesting an analysis of apparent cases of verb coordination in terms of right node raising. According to Kayne's suggestion, (18a) would be analyzed as in (i), where [e] in the first conjunct is an object deleted under identity with the object in the second conjunct.

(i) John [saw $[e]_i$] and [reviewed [different $films]_i$].

The problem with this analysis is that the source sentence, given in (ii), does

Now let us consider Japanese in this light. Look at (19).

(19) a. John-to Bill-ga tigau/kotonaru/betubetuno
John-and Bill-NOM different
eiga-o mita.
movie-ACC saw
'John and Bill saw different movies.'
b. Tigau/Kotonaru/Betubetuno inu-ga John-to
different dog-NOM John-and
Bill-o kanda.
Bill-ACC bit
'Different dogs bit John and Bill.'
c. John-ga tigau/kotonaru/*betubetuno eiga-o mita.
John-NOM different movie-ACC saw
'John saw a different movie.'

(19a–b) allow a sentence-internal reading of 'different' but (19c) does not.[8] Japanese patterns with English here.

Recall that Japanese has three constructions in which verbs are apparently conjoined, namely, those illustrated in (8a–b) and (12). The constructions in (8b) and (12) contrast with the cases in (18) in that they do not allow sentence-internal readings.

(20) a. John-ga tigau/kotonaru/*betubetuno ronbun-o
John-NOM different paper-ACC
kopiisi-te fairusita.
copy-ing filed
'John copied a different paper and then filed it.'
b. Tigau/Kotonaru/*Betubetuno gakusei-ga sono
different student-NOM that
ronbun-o kopiisi-te fairusita.
paper-ACC copy-ing filed
'A different student copied the paper and then filed it.'

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not have the sentence-internal reading that (18a) has (see also Carlson 1987).

(ii) John saw different films and reviewed different films.

Thus, although the right-node-raising analysis may be relevant to some *V and V* cases, examples like (18) should be analyzed as involving coordination of finite verbs, as claimed here. Kayne (1994:61) also suggests a possibility that *V and V* has a hidden structure similar to that of *V and then V*. This does not hold for all *V and V* cases, either. Compare (iii) and (iv).

(iii) a. John read and reviewed different books.
b. Different students copied and filed the paper.

(iv) a. John read and then reviewed different books.
b. Different students copied and then filed the paper.

The sentence-internal reading is possible in (iii) but not in (iv). This fact makes it hard to treat (iii) on a par with (iv).

[8] Whereas *tigau* and *kotonaru* can in principle receive sentence-external as well as sentence-internal readings (like English *different*), *betubetuno* can receive only a sentence-internal reading. Hence, (19c) is ungrammatical if *betubetuno* is used.

(21) a. John-ga tigau/kotonaru/*betubetuno ronbun-o
John-NOM different paper-ACC
kopiisita sosite fairusita.
copied and filed
'John copied a different paper and he filed it.'
b. Tigau/Kotonaru/*Betubetuno gakusei-ga sono
different student-NOM that
ronbun-o kopiisita sosite fairusita.
paper-ACC copied and filed
'A different student copied the paper and he/she filed it.'

The fact that all the cases in (20) and (21) lack sentence-internal readings thus lends strong empirical support to the claim made above that the Japanese examples in (8b) and (12) do not involve coordination of verbs.

Recall that (8b) most likely involves an adjunct clause, as in (11), rather than a coordination structure. If so, the lack of sentence-internal readings in (20) falls into place. As for (12), I suggested that it involves coordination of full clauses where the second conjunct contains phonetically null arguments, as in (14). Analyzed in this way, the examples in (21) contain the word for 'different' in one of the conjuncts. As (22) (from Carlson 1987) shows, this configuration does not license a sentence-internal reading.

(22) John [spilled his milk] and [poached different eggs].

The fact that the examples in (21) do not have sentence-internal readings thus follows under the analysis in (14). It also shows clearly that Japanese lacks structures in which finite verbs are conjoined.

Let us turn now to the construction in (8a). Observe (23).

(23) a. John-ga tigau/kotonaru/betubetuno ronbun-o kopiisi
John-NOM different paper-ACC copy
fairusita.
filed
'John copied and filed different papers.'
b. Tigau/Kotonaru/Betubetuno gakusei-ga sono
different student-NOM that
ronbun-o kopiisi fairusita.
paper-ACC copy filed
'Different students copied and filed the paper.'

In contrast to the cases in (20) and (21), these cases can have sentence-internal readings.[9] This fact confirms the claim that (8a) contains a real coordination of verbs.

[9] Daisuke Inagaki and Akira Watanabe originally pointed out to me that the sentence-internal reading is possible in cases like (23). For reasons I do not understand, the sentence-internal reading of (23) becomes impossible if *sosite* 'and' is added between the two verbs (see footnote 4).

These observations lead to the following generalizations:

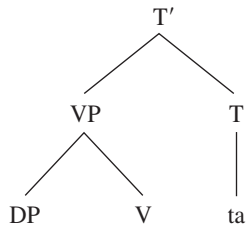
(24) a. Japanese does not allow finite verbs to be conjoined.
b. When verbs are conjoined in Japanese, the first conjunct must be a bare verb.

Why do these generalizations hold? It is desirable to provide a unified account of them.

2 Verbal Inflection in Japanese

As shown above, the fact that finite verbs can be conjoined in English receives a simple account if all finite verbs in English are fully inflected when they enter syntactic derivation. The fact that finite verbs cannot be conjoined in Japanese suggests that Japanese employs a different strategy for verbal inflection. In fact, on independent grounds Takano (1996), Fukui and Takano (1998), Sakai (1998), and Aoyagi (2001) have proposed that in Japanese all finite verbs are bare in syntax and are merged with their inflectional morphemes in the phonological component under the condition of adjacency.[10] On this view, Japanese has the structure (25) in syntax, where V is a bare verb and the tense morpheme is located in T.

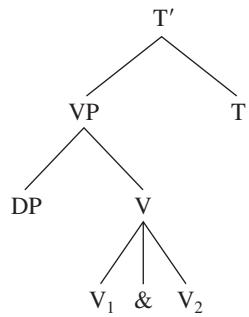
(25)



Given that V and T do not form a constituent, it is impossible to conjoin verbs having inflectional morphemes. (24a) thus follows.

Imagine that bare verbs are conjoined, as in (26).

(26)



[10] While this general approach shares with a proposal of Sells (1995) the claim that verbal inflection in Japanese does not involve syntactic head

In (26), V_1 and V_2 are bare verbs, and & is a phonetically null conjunction. Since V_1 and V_2 are constituents, they can be conjoined. What will the surface form of (26) be like? Since the tense morpheme is in T and it is a suffix to a verb, it will end up being attached to V_2, which is adjacent to T after linearization in the phonological component. On the other hand, V_1 will remain bare. This is exactly the surface form we see in (8a) and (23). So (24b) follows as well.

Thus, this analysis of verbal inflection in Japanese makes it possible to account for both the fact that finite verbs cannot be conjoined and the fact that when verbs are conjoined, the first conjunct must be a bare verb.[11]

3 Conclusion

I have provided new evidence based on coordination of verbs concerning the analysis of verbal inflection in English and Japanese. The evidence supports the idea, advanced independently of the present discussion by Takano (1996), Fukui and Takano (1998), Sakai (1998), and Aoyagi (2001), that whereas English finite verbs are fully inflected when entering syntactic derivation, Japanese verbs and their inflectional morphemes are separated in syntax and are merged in the phono-

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movement, it also differs from Sells's proposal, which argues that all inflectional morphemes in Japanese are attached in the lexicon and have no syntactic status.

[11] The analyses of verbal inflection in English and Japanese argued for here carry over to cases involving coordination of phrases containing verbs.

(i) Different people discovered America and invented bifocals. (Carlson 1987)

(ii) a. Tigau/Kotonaru/Betubetuno inu-ga John-o oikake Bill-o kanda.
different dog-NOM John-ACC chase Bill-ACC bit
'Different dogs chased John and bit Bill.'

b. Tigau/Kotonaru/*Betubetuno inu-ga John-o oikake-te Bill-o kanda.
different dog-NOM John-ACC chase-ing Bill-ACC bit
'A different dog chased John and then bit Bill.'

c. Tigau/Kotonaru/*Betubetuno inu-ga John-o oikaketa sosite Bill-o kanda.
different dog-NOM John-ACC chased and Bill-ACC bit
'A different dog chased John and it bit Bill.'

Only (i) and (iia) allow sentence-internal readings. Assuming that (i) and (iia) involve VP-coordination, the availability of the sentence-internal reading in (i) follows from the finite verb's having its inflectional morpheme in syntax and that in (iia) (where the first verb is bare) from the tense morpheme's being located in T in syntax and attached to the adjacent verb in the phonological component. (iib) (where the first verb is gerundive/participial) does not have a coordination structure but an adjunct clause of which the gerund/participle is the predicate, and (iic) (where the first verb is inflected for tense) has two conjoined TPs.

logical component. If so, Universal Grammar has both types of verbal inflection available for particular languages to employ.[12]

References

Aoyagi, Hiroshi. 2001. Nihongo ni okeru zyutugo to ziseiyooso no kootyaku ni tuite. In *Academia: Literature and language 70,* ed. by Toru Maruyama and Takeshi Nerio, 1–30. Nagoya: Nanzan University, Nanzan Academic Society.

Baker, Mark. 2002. Building and merging, not checking: The nonexistence of (Aux)-S-V-O languages. *Linguistic Inquiry* 33: 321–328.

Bobaljik, Jonathan. 1994. What does adjacency do? In *The morphology-syntax connection,* ed. by Heidi Harley and Colin Phillips, 1–32. MIT Working Papers in Linguistics 22. Cambridge, Mass.: MIT, Department of Linguistics and Philosophy, MITWPL.

Carlson, Greg. 1987. *Same* and *different:* Some consequences for syntax and semantics. *Linguistics and Philosophy* 10:531–565.

Chomsky, Noam. 1995. *The Minimalist Program.* Cambridge, Mass.: MIT Press.

Fukui, Naoki, and Yuji Takano. 1998. Symmetry in syntax: Merge and Demerge. *Journal of East Asian Linguistics* 7:27–86.

Halle, Morris, and Alec Marantz. 1993. Distributed Morphology and the pieces of inflection. In *The view from Building 20: Essays in linguistics in honor of Sylvain Bromberger,* ed. by Kenneth Hale and Samuel Jay Keyser, 111–176. Cambridge, Mass.: MIT Press.

Kayne, Richard. 1994. *The antisymmetry of syntax.* Cambridge, Mass.: MIT Press.

Lasnik, Howard. 1995. Verbal morphology: *Syntactic structures* meets the Minimalist Program. In *Evolution and revolution in linguistic theory: Essays in honor of Carlos Otero,* ed. by Héctor Campos and Paula Kempchinsky, 251–275. Washington, D.C.: Georgetown University Press.

Sakai, Hiromu. 1998. Feature checking and morphological merger. In *Japanese/Korean linguistics,* vol. 8, ed. by David J. Silva, 189–201. Stanford, Calif.: CSLI Publications.

Sells, Peter. 1995. Korean and Japanese morphology from a lexical perspective. *Linguistic Inquiry* 26:277–325.

Takano, Yuji. 1996. Movement and parametric variation in syntax. Doctoral dissertation, University of California, Irvine.

Zoerner, Edward. 1995. Coordination: The syntax of &P. Doctoral dissertation, University of California, Irvine.

[12] This brief discussion does not do justice to the empirical advantages of the proposals of Halle and Marantz (1993), Bobaljik (1994), and Lasnik (1995). The relevant issues include *do*-support (Halle and Marantz 1993, Bobaljik 1994, Lasnik 1995) and VP-ellipsis (Lasnik 1995). See also Baker 2002. These important issues must be left for future research.