On Long Head Movement in Bulgarian

David Embick and Roumyana Izvorski
University of Pennsylvania

1. Introduction

We examine in this paper the case of Participle-Auxiliary word-orders in Bulgarian. This phenomenon is exhibited by sentence (1a) in the following set of examples:[1]

(1) a. **Jal** e šopska salata.
   eaten is Shop salad
   'He has eaten Shop salad.'

 b. *E jal šopska salata.

(2) Veče e **jal** šopska salata.
   already is eaten Shop salad
   'He has already eaten Shop salad.'

As seen in example (1b), sentences in which the (present tense) auxiliary appears sentence-initially are ungrammatical. Furthermore, as shown in (2), when other elements, such as an adverb, precede the auxiliary, the participle does not appear before the auxiliary.

Previous analyses (Lema and Rivero (1989), Rivero (1991), and related work), dealing with Participle-Aux orders in many Romance languages and Slavic languages (including Bulgarian) have treated the word order in (1a) as involving head movement of the participle to C^0. This movement was dubbed Long Head Movement (LHM) on the grounds that the participle was assumed to move directly to C^0, bypassing the intervening head occupied by the auxiliary, and thus violating the Head Movement Constraint.

We will show through a detailed examination of the relevant data that a LHM account of Participle-Auxiliary orders is not motivated for Bulgarian. These orders, previously assumed to be uniform in motivation, will be shown to be non-uniform in motivation, with some being optional and others obligatory. For the obligatory cases, an operation other than LHM, namely Morphological Merger (Marantz (1988)), will be shown to derive the correct word order. We will argue that the cases of optional Participle-Aux orders do not behave like head movement to C^0, and draw an analogy between the Bulgarian cases and phenomena in Germanic.

2. A Brief Summary of Previous Accounts

Previous accounts of the Participle-Aux word order in Bulgarian have, since the analysis of Lema and Rivero (1989), treated it as involving head movement of the participle to C^0.[2]

Many analyses following this approach have assumed this approach, and have sought to answer two further questions: (i) the question of what drives the movement of the participle; and, (ii) the question of how LHM may be made to satisfy the ECP. As these analyses have varied somewhat along these points, we will provide here a summary of what has been said on these points, and then proceed to discuss the features common to LHM-based approaches.

1. Lema and Rivero (1989): These authors were the first to propose that LHM was the source of Participle-Aux orders. This violation of the Head Movement Constraint is claimed to be legitimate on the grounds that the auxiliary and the participle in LHM cases are coindexed through 'Tense-Marking'.

2. Rivero (1991): Auxiliaries are divided into two categories: *functional* auxiliaries, requiring government of their maximal projections, and *lexical* auxiliaries, which have no such requirement. The need to govern stranded functional auxiliaries drives movement of the participle to C^0. An A/A' distinction between heads is appealed to in order to resolve ECP questions.

3. Roberts (1994): Head-movement is subject to a relativized version of the ECP based on the L-Relatedness/Non-L-Relatedness of heads, and LHM satisfies the ECP accordingly. LHM is motivated by the need to provide a host for a clitic-auxiliary (or a pronominal clitic in Romance).

4. Wilder and Ćavar (1994): For Croatian only; LHM exists as movement of the participle to the clitic-complex in C^0 in order to provide it with a host.

5. Rivero (1994): The functional/lexical distinction between auxiliaries is appealed to once again, with some modifications to the mechanics (this will be taken up later).

The features common to these previous LHM-based accounts can be given as follows. First, as noted above, LHM is taken uniformly to involve head-movement of the participle to C^0, as shown in (3):

(3) $[_{CP} [_{C^0} jal_i] [_{IP} [_{I^0} e] [_{VP} t_i$ šopska salata]]]

The second common feature is that the relevant movement occurs in one-step, and skips the position occupied by the auxiliary; the motivation of this is as a last-resort movement, effected to save a sentence-initial auxiliary. Accompanying these common features are a number of common predictions. The first is that LHM should not occur optionally, because it is a last-resort operation. Second, LHM should show locality effects, just like other cases of head movement. Finally, the third prediction is that LHM, as movement to C^0, should only occur in matrix clauses, because the driving factors for the movement would not be present in embedded clauses; that is, whether the motivation for LHM is stated in terms of support for clitics, or in terms of a government requirement for certain auxiliaries, the presence of the complementizer. We take up each of these three facets of the LHM analysis in the following section.

3. Problems with the LHM Accounts

3.1 Optional LHM

As noted in the previous section, LHM based accounts make the prediction that optional LHM should not exist. The reason for this is to be found in the nature of LHM as a last-resort operation; when there is no need for the movement to apply, it will not take place. 'Redundant' applications of LHM are supposed to be ruled out by Economy of Derivation, as in the case of the following example (examples like this are discussed in Rivero (1991)):

(4) Kakvo ti e kazal?
     what you is told
     'What has he told you?'

(5) *Kakvo kazal ti e?

In the ungrammatical example, LHM has applied redundantly because the fronted *wh*-word suffices to prevent the auxiliary from appearing sentence-initially. The problem with this approach to Participle-Aux orders is that such orders may appear optionally, as seen in the following examples with the past and conditional auxiliaries:

(6) a. Beše izpil birata.
         was drunk beer-the
         'He had drunk the beer.'
     b. Izpil beše birata.

(7) a. Bih   igral   tenis.
         would-1sg played tennis
         'I would play tennis.'
     b. Igral bih tenis.

In each of the (a) examples here the auxiliary appears sentence-initially in a grammatical sentence, while in each of the pragmatically marked (b) sentences, a grammatical Participle-Aux order is found.

A similar type of optionality is seen in examples with the future particle *šte*:[3]

(8) a. Šte e izpil konjaka.
         will is drunk cognac-the
         'He will have drunk the cognac.'
     b. Izpil šte e konjaka.

Another type of optionality is seen in two-participle examples in the Renarrated Mood; either of the two participles may precede the auxiliary.[4]

(9) a. Bili sa   rešili   zadačata.
         been are-3pl solved problem-the
         'They are said to have solved the problem.'
     b. Rešili sa bili zadačata.

3.2 Non-Local LHM

As seen in examples (8b) and (9b) above, Bulgarian exhibits what would appear on the LHM account to be non-local head movement: movement of the lower participle over two intervening heads (the auxiliary and the future particle in the first case, and the auxiliary and the first participle in the second.) LHM-based accounts have recognized that the movement they posit violates the Head Movement Constraint, and have addressed the question of how it satisfies the ECP. In Roberts (1994), an L-Related/Non-L-Related distinction between heads and a version of Relativized Minimality for head movement are argued to capture the relevant locality effects. On Roberts' assumptions, I^0 is an L-Related head and C^0 a

non-L-related head; movement of the participle to C^0 is to a non-L-related position, and is licit on the relativized version of the ECP because no non-L-related heads intervene.

The data relevant for this are the two-participle cases mentioned in the previous section. In Croatian (Wilder and Ćavar (1994)) a second participle may not move over the first participle:

(10) a. Bili su   čitali knjigu.
         been be-3pl read book
         'They had read the book.'
     b. * Čitali su bili knjigu.[5]

Minimal pairs such as those in (10) were in fact used to argue that the relevant Participle-Aux orders involve head movement, given the locality-like effects that they exhibit. On the L-Related/Non-L-Related approach to locality, the ungrammaticality of the second example would follow from the fact that the second participle has moved over the position occupied by the first, which is non-L-related. The sentence is thus ungrammatical because a potential intervening non-L-related landing site has been skipped.

Returning to the Bulgarian examples seen above, one could conceivably say that the first participle is in an L-related position. But when we consider this in light of the Croatian pattern, we see that this approach to locality would wind up having to stipulate on a language specific basis the status of certain heads. In other words, no generalizations about locality are gained because the process becomes fundamentally stipulative.

3.3 "LHM" Word Order in Embedded Clauses

A third prediction common to LHM accounts is that participle movement will not occur in embedded clauses, because such movement would be unnecessary. The exact reasons for saying this vary from account to account; for instance, in Roberts (1994) participle movement in an embedded clause would be unnecessary because the complementizer would always provide support for the clitic auxiliary, while in Rivero (1994) participle movement would be unnecessary because the complementizer would govern the projection headed by the auxiliary. Examples like the following from Serbo-Croatian have been given to support this claim:

(11) * Ivan kaže, da čitala je Marija knjigu.
       Ivan said that read is Marija book
       Ivan said that Maria has read the book.

(12)   Ivan kaže, da je čitala Marija knjigu.

In Bulgarian, however, Participle-Aux orders are in fact possible in embedded clauses:[6]

(13) Rasbrah   če pročel beše knigata.
     understood that read   had book-the
     'I understood that you had read the book.'

The grammaticality of these forms provides further doubts about LHM-based analyses.

A possible counterargument to the claim that examples like (13) provide support against LHM would be to say that embedded Participle-Aux forms involve

CP-Recursion. That is, one might argue that Bulgarian allows two CPs in examples like (13), with the participle moving to the lower C^0. However, CP-Recursed structures must meet certain licensing requirements, as discussed in the literature on the topic (see e.g. Iatridou and Kroch (1993) for a recent discussion.) Crucially, such structures are possible only under government by a verbal head. One environment in which these licensing requirements are not met can be found in *if*-clauses, which also allow for Participle-Aux orders in Bulgarian:

(14) Ako **pročel e** knigata ...
　　 If　 read　 is book-the
　　 'If he has read the book...'

In conclusion, then, CP-Recursion as currently understood is not at play in examples like (14). Such examples thus constitute a case in which there is no motivation for participle movement on the LHM accounts, and in which there seems to be no possibility of movement to an C^0 as being responsible for the Participle-Aux order.

3.4 A Summary of This Section

Concluding this section, we have seen that all three of the predictions made by the LHM accounts of Participle-Aux orders are contradicted in Bulgarian, a language to which the LHM analysis has been claimed to apply. These facts raise serious doubts about the validity of a movement to C^0 analysis for the Bulgarian data. In the next section, we will present an alternative analysis of these data in which participle movement to C^0 does not play a role.

4. An Alternative to the LHM Analysis

In analyzing the Participle-Aux orders of Bulgarian, we have two sets of cases to account for. The first set will consist of the cases in which this order is obligatory; i.e. those in which the auxiliary would otherwise have to appear sentence-initially. The second will be those in which Participle-Aux orders are optional; these are the cases seen in §3.1, which have to this point not been discussed in the literature (an exception to this is Bošković (1994), who discusses the optional cases in Serbo-Croatian.)

4.1 The Obligatory Cases

The first point that will be relevant in our discussion of the obligatory cases concerns the status of the present-tense auxiliaries, those which cannot appear sentence-initially; this as opposed to e.g. the past auxiliary, which may appear sentence-initially. We will assume that these auxiliaries are clitics, and that they require an element to their left for support. This assumption is certainly not unique to this account; it has, for instance, served as the motivating factor behind LHM in analyses like that of Roberts (1994). In presenting our analysis, we will rely on the status of the auxiliary as a clitic without invoking participle movement to C^0 as a means of satisfying the clitic's dependency; other factors will lead to the obligatory Participle-Aux orders.

Before we proceed with the analysis, a few points are in order considering the distinction we are making among Bulgarian auxiliaries. Factors other than clitichood have been appealed to in classifying the auxiliaries according to whether they may appear sentence-initially or not. Recently, Rivero (1994) has proposed a distinction between auxiliaries meant to capture the relevant difference.

The idea underlying the account of LHM given in Rivero (1994) is that certain functional categories have licensing requirements, and that a need to satisfy these requirements is the motivation behind Long Head Movement. Extending aspects of the feature-checking system of Chomsky (1993), Rivero argues that in addition to V having features to be checked, functional categories, including I^0 and some auxiliary verbs argued by Rivero to be generated in I^0, have features that must be licensed. Rivero explores two different ways in which this licensing may be accomplished. The first involves the licensing of the features through government of the functional category by an immediately dominating head.

Accompanying this account of licensing is a distinction between two types of auxiliaries in Slavic. The first type, the *lexical* auxiliaries behave like main verbs in satisfying the properties of I^0 by moving to I^0; thus these act in accordance with the H-Checking Domain Condition. Another type of auxiliary verbs, the *functional* auxiliaries, are such that they must head governed projections (i.e. they are subject to the H-Internal Domain Condition).

Returning to the clitic approach that we are adopting, we see that in partitioning the auxiliary system on the basis of phonological considerations, the resulting groups are the same as they are on Rivero's analysis. However, the clitic/non-clitic distinction makes the partition on much more natural grounds, and does not need to invoke licensing or other mechanisms. Furthermore, support for the clitic/non-clitic distinction may be found in the fact that, under certain circumstances, the present auxiliary *e* may be stressed and appear sentence-initially (example from Hauge 1976):

(15) É li dejanieto na Kostova prestâplenie i　 ako é kakvo?
　　 is Q deed-the of Kostova crime　 and if　 is what
　　 'Is Kostova's act a crime, and if it is, what kind of a crime is it?'

At issue here is the cancellation of the phonological dependency of the auxiliary, not the need of present-tense auxiliaries to head governed projections, given that it is not obvious why stress should be relevant if government were the decisive factor.

Having decided that we will treat the present-tense auxiliaries as having a leftward dependency, we will proceed to show that the necessary Participle-Aux orders may be derived from the clitichood of the auxiliary in combination with the operation of Morphological Merger of Marantz (1988) and related work.

(16) Morphological Merger
At any level of syntactic analysis, ... a relation between X and Y may be replaced by (expressed by) the affixation of the lexical head of X to the lexical head of Y.

The relevance of Morphological Merger to the present case can be seen in its effects upon clitics that have been stranded in sentence-initial position. This may be illustrated with the following example from O'odham, taken from Marantz (1988); syntactically, we have a situation in which the auxiliary is leftward dependent, but sentence initial in the syntax (so that the sentence is ungrammatical as it stands):

(17)　 *'o　 pi　 iam-hu cikpan g　 Huan.
　　 AUX NEG there　 work　 ART John
　　 'John is not working there.'

Morphological Merger applies to the stranded auxiliary to yield the following order, in which the auxiliary 'o has been affixed to the lexical head to its right:

(18) pi=o iam-hu cikpan g Huan.

The relationship between this case and the Bulgarian examples we have been looking at is quite close, given that in each case we are dealing with a clitic auxiliary that has been stranded sentence-initially. Still, one further point must be established before the Merger analysis may be extended to Bulgarian. This concerns adjacency of the auxiliary and the participle. The relevant Aux-Participle orders are obligatory in Bulgarian, as seen in the following minimal pair:

(19) a. Koga **e pil**   Ivan vino?
          When is drunk Ivan wine
          'When is Ivan drunk wine?'

(20)   * Koga e Ivan **pil** vino?

The grammaticality of (19) as opposed to the ungrammaticality of (20) shows that the participle must precede the subject when both of these elements occur after the auxiliary. A further type of example relevant to what is happening in (19) can be seen in the relative orders for participles and VP-adverbs like *bárzo*, 'quickly':

(21) a. Az **sám pročel** bárzo   knigata.
          I   am read   quickly book-the
          'I read the book quickly.'

      b. ?(?) Az **sám bárzo pročel** knigata.

We take these word-orders to be the result of a process that we will call *Short Participle Movement*; this moves the participle to the next higher functional head, which is that immediately beneath the head occupied by the auxiliary (we will indicate this projection as XP).[7]

Operating on the assumption that Short Participle Movement applies to make the auxiliary and the participle adjacent in the syntax, the manner in which Merger applies in Bulgarian becomes clear. Taking the following (which is ungrammatical as it stands):

(22)   * **E zaspal**.
          is fallen-asleep
          'He is fallen asleep'

we have the structure in (23) in the syntax:

(23) *Before Merger*:
      [ᵢₚ [ᵢₚ e] [ₓₚ zaspalⱼ [ᵥₚ [ᵥₒ tⱼ]]]]]]

Merger then applies to affix the auxiliary to the participle, yielding the following:

(24) **Zaspal e**.

Affixation of the auxiliary to the head of the projection that is right-adjacent to it thus resolves the dependency of the clitic.

Before we proceed to examine how Merger can be applied to other cases of Participle-Aux orders, a few words are in order concerning why we have chosen Merger as the means of capturing these data, as opposed to a prosodically based formulation of inversion like that of Halpern (1992).[8]

Two separate considerations lead one to the conclusion that the inversion should be captured in terms of Merger. The first is that the dependency of the present-tense auxiliaries may be satisfied by elements which are themselves not prosodic words; in particular, the proclitics *šte* (the future particle) and *ne* (negation) may provide support for the auxiliaries in question:

(25) Ne **sám jal**   riba.
      not am   eaten fish
      'I haven't eaten fish.'

(26) **Šte e izpil** konjaka.
      will is drunk cognac-the
      'He will have drunk the cognac.'

The fact that the auxiliary may be supported by these elements suggests that the means responsible for resolving its dependency are not defined in terms of prosodic wordhood. The second sort of examples relevant to our choice may be seen in the following pair:

(27) a. **Dobár student e**.
          good   student is
          'He is a good student.'

      b. * **Dobár e** student.

The second example here is one that would be allowed if inversion defined in terms of the prosodic clitic were at play; the fact that the clitic may only appear after the head of the phrase, *student*, once again argues for the non-prosodic analysis, given that prosodic inversion could place the clitic after *dobár*, which is a prosodic word.

4.2 The Optional Cases

As we showed in the last section, the obligatory cases of Participle-Aux orders may be analyzed without recourse to Long Head Movement. The natural question that now arises concerns the behavior of the optional LHM orders exhibited earlier; in particular, do these case show optional head-movement to C⁰? Consider the following pairs of examples; (28) simply shows an optional LHM order, while (29) provides evidence that bears directly on the question just posed:

(28) a. **Beše pročela** knigata.
          was   read-F book-the
          'She had read the book.'

      b. **Pročela beše** knigata.

(29) a. Paulina **beše pročela** knigata.
          Paulina was read-F   book-the
          'Paulina had read the book.'

      b. * **Pročela** Paulina **beše** knigata.

These four examples taken together constitute a strong argument that optional LHM orders are not an instance of optional movement to C⁰. At issue here is the ungrammaticality of (29b). As seen in (28a), the auxiliary *beše* may appear sentence-initially, and has no need to be supported. Unnecessary movement cannot be invoked as the reason for the ungrammaticality of (29b), given that the movement in grammatical (28b) is equally 'unnecessary'. The only difference between the two cases is the presence of a lexical subject in (29b), and there is no clear reason why head-movement to C⁰ should be affected by the presence or absence of a subject.

We thus conclude that the optional cases of Participle-Aux word-order are not the result of movement of the participle to C^0.

Having shown that the optional cases do not behave like cases of movement of the participle to C^0, we will now present considerations that allow us to see more clearly what they do look like. Our approach will be to make an analogy between Bulgarian Participle-Aux orders and the same types of word-order in Germanic. The phenomenon in Germanic that is relevant to our discussion of LHM-orders is the *Stylistic Fronting* of Icelandic, shown in the following in both embedded and matrix clauses (Examples from Rögnvaldsson and Thráinsson (1990)):

(30) a. Allt sem hefur verið sagt er satt.
everything that has been said is true
'Everything that has been said is true.'

b. Allt **sagt** hefur verið er satt.
everything that said has been is true.

(31) a. **Keypt** hafa þessa bók margir stúdentar.
bought have this book many students
'Many students have bought this book.'

b. **Fram** hefur komið að …
out has come that …
'It has become clear that…'

A series of generalizations about this phenomenon are given in the following list, taken from Maling (1990):

1. Applies to participles, adverbs, adjectives
2. Possible in embedded clauses
3. Subject gap required

Each of these properties, as is evident from the preceding discussion, holds for Bulgarian Participle-Aux orders as well.[9] In addition, Bulgarian Participle-Aux once again resembles Icelandic Stylistic Fronting on the issue of negation. In the original work that posited head movement to C^0 as being responsible for Participle-Aux in Bulgarian, Lema and Rivero (1989) take the following contrast to argue that Participle-Aux shows the locality effects characteristic of head movement:

(32) Ne e **pročel** knigata.
not is read book-the
'He has not read the book.'

(33) ??**Pročel** ne e knigata.

Once again, this situation seems to be paralleled in Icelandic (Examples from Maling (1990)):[10]

(34) a. þetta er glœpamaðurinn sem **ekki** hefur verið dœmdur.
this is the-criminal that not had been convicted.
'This is the criminal that had not been convicted.'

b. *þetta er glœpamaðurinn sem **dœmdur** hefur ekki verið.

In light of the parallels seen above, it would seem that an analysis of Stylistic Fronting would certainly shed light on the Bulgarian Participle-Aux cases. However, analyses of the phenomenon in Icelandic are less than clear concerning the exact nature of what is moved. In the approach of Rögnvaldsson and Thráinsson (1990), Stylistic Fronting moves the participle to the position normally occupied by the subject (SPEC/IP in analyses of Icelandic). Yet in their phrase structure, this is shown to be fronting of the verbal head only- and this raises serious questions about the nature of the movement.

An option which then suggests itself would involve the fronting of the entire VP; this is illustrated in the following case from German, which is analyzed as involving extraposition of the object *das Buch* along with fronting of the VP:

(35) [$_{VP}$ Gestohlen] hat Fritz das Buch.
stolen has Fritz the book
'Fritz stole the book.'

Extending such an analysis to Bulgarian would immediately raise a difficult question. This concerns the object within the VP; in the German case above, the object is assumed to have been extraposed. However, it is also possible for the object to fronted with the entire VP, as in the following:

(36) [$_{VP}$ Das Buch gestohlen] hat Fritz sicher.
the book stolen has Fritz certainly
'Fritz certainly stole the book.'

The question that this raises for Bulgarian concerns the extraposition of the object from the fronted VP; in Bulgarian, fronting both the verb and its object results in ungrammaticality. This is expected to be legitimate on the VP fronting account; thus in order to maintain this approach one would have to explain why the object must obligatorily be extraposed from a fronted VP in Bulgarian, and there is no basis for explaining why this should be this case at present.[11] These considerations apply as well to the two-participle cases in which either participle (but not both) may appear before the auxiliary, introduced in (9) above.[12]

A further option, and one that seems promising initially, would be to hold that the optional cases involve incorporation of the participle into the auxiliary in T^0. Among other things, an account based on this would have to explain why this movement is apparently non-local in the two participle cases discussed above. But such an approach could be used to explain the following case, in which the participles appear in reverse order after the auxiliary (accompanied by a change in pragmatics):

(37) Ivan e **pročel** bil knigata.
Ivan is read been book-the
'Ivan had read the book.'

We will not explore the consequences of such an approach in detail here, but will leave this for another occasion.

In sum, then, while the Bulgarian and Icelandic constructions are parallel on a number of points, it is not clear at this point how precisely either of the movements should be analyzed. Nevertheless, we have shown that progress on either case will have significant cross-linguistic implications, whether in affirming or denying the parallels we have drawn.

One more point that remains concerns the relationship between the obligatory Participle-Aux orders and the optional ones discussed in this section. The fronting

process responsible for the optional orders could presumably apply in the obligatory cases to produce the Participle-Aux surface. Thus it is conceivable that all such orders might be handled with one syntactic operation, despite the fact that the motivation for this movement would still be different in each set of cases. In part, questions concerning this reduction of cases will depend upon one's theoretical assumptions. We have been able to analyze the obligatory cases in detail, but have left some of the structural questions concerning the optional cases unresolved. For the time being, then, we will not argue for a complete reduction, but at the same time we leave open the possibility that such a reduction could be accomplished as our understanding of the optional cases improves.

5. Conclusions

Our purpose in this paper has been to show that Participle-Aux orders in Bulgarian, argued by earlier authors to be an instance of head movement to C^0, do not in fact behave as if they involve such movement. In addition to this, it was shown that Participle-Aux orders are not uniform in motivation; some are obligatory, in the sense that the participle appears before a clitic auxiliary that must be supported, while others are purely optional. In the obligatory cases, the effects of Morphological Merger were shown to produce the Participle-Aux orders, with no need for head movement of the participle to C^0. In the optional cases, it was shown that optional head movement to C^0 is not at play, and that the Bulgarian cases are in many ways quite similar to the Icelandic Stylistic Fronting. We thus conclude that Bulgarian does not exhibit head movement to C^0 that bypasses intermediate heads, i.e. Long Head Movement.

Notes

* For helpful discussion of the issues presented here we are indebted to Michael Hegarty, Sabine Iatridou, Tony Kroch, Ian Roberts, and Bernhard Rohrbacher.
1. Throughout the examples participles will appear boldfaced while auxiliaries will be underlined.
2. One analysis departing from the LHM approach is that of Bošković (1994), who analyzes Serbo-Croatian. We will not discuss this approach in detail because our focus is on the appropriateness of LHM analyses for Bulgarian.
3. The future particle, unlike auxiliaries, is not inflected.
4. Examples like the following are also relevant to the questions of locality that surround LHM, and are taken up in the next subsection.
5. Such examples are claimed to be grammatical in Bošković (1994). The opinions of other native speakers we have consulted are divided; this seems to be due to dialect variation.
6. Examples with Participle-Aux orders in embedded clauses have been claimed to be ungrammatical in the literature (Rivero (1991)); the judgment given here, however, is one shared by many native speakers.
7. This head could be an Agr, but this will depend on one's assumptions. We leave open the question of what drives this movement.
8. Halpern's definition is as follows:

1. **Prosodic Adjunction of Clitics:** For a clitic X, which must have a prosodic host ω to its left (respectively right),

a. if there is a ω, Y, comprised of material which is syntactically immediately to the left (right) of X, then adjoin X to the right (left) of Y.

b. else attach X to the right (left) edge of the ω composed of syntactic material immediately to its right (left).

9. With regard to point (3) here, it should be noted that Bulgarian marginally allows sentences with the order [Subject Participle Aux]; but [Participle Subject Aux] orders are entirely ungrammatical.
10. Negation in Icelandic can be fronted in the Stylistic Fronting process as well, and must be fronted to the exclusion of other elements in the relevant circumstances. See Maling (1990) for details.
11. See, however, Bošković (1994) for discussion of such a VP-fronting approach for Serbo-Croatian.
12. One more note on the two participle cases is necessary; we regard such instances as involving Merger in the case in which the first participle precedes the auxiliary (see e.g. (9a) above.) We class the other cases, in which the second participle precedes the auxiliary (see (9b)), with the optional cases discussed in this section.

References

Bošković, Željko. (1994) "Participle Movement, Object Shift, and Second Position Cliticization in Serbo-Croatian," to appear in the proceedings of FASL 3.

Chomsky, N. (1993) "A Minimalist Program for Linguistic Theory," in K. Hale and S. Keyser, eds., *The View from Building 20: Essays in Linguistics in Honor of Sylvain Bromberger*, MIT Press, Cambridge, MA.

Halpern, A. (1992) *Topics in the Placement and Morphology of Clitics*, Doctoral dissertation, Stanford University.

Iatridou, S., and A. Kroch (1993) "The Licensing of CP-Recursion and Its Relevance to Germanic V2 Phenomena," *Working Papers in Scandinavian Syntax* 50, 1–24.

Lema, J., and M.-L. Rivero (1989) "Long Head Movement: ECP vs. HMC," in *Proceedings of NELS*, volume 20, 333–347.

Maling, J. (1990) "Inversion in Embedded Clauses," in J. Mailing and A. Zaenen, eds., *Syntax and Semantics 24: Modern Icelandic Syntax*, Academic Press, San Diego.

Marantz, A. (1988) "Clitics, Morphological Merger, and the Mapping to Phonological Structure," in M. Hammond and M. Noonan, eds., *Theoretical Morphology*, Academic Press, San Diego.

Rivero, M.-L. (1991) "Long Head Movement and negation: Serbo-Croatian vs. Slovak and Czech," *The Linguistic Review* 8, 319–351.

Rivero, M.-L. (1994) "Finiteness and Second Position in Long Head Movement Languages: Breton and Slavic," ms. University of Ottawa.

Roberts, I. (1994) "Two Types of Head Movement in Romance," in D. Lightfoot and N. Hornstein, eds., *Verb Movement*, Cambridge University Press, Cambridge.

Rögnvaldsson, E., and H. Thráinsson (1990) "On Icelandic Word Order Once More," in J. Maling and A. Zaenen, eds., *Syntax and Semantics 24: Modern Icelandic Syntax*, Academic Press, San Diego.

Wilder, C., and D. Ćavar (1994) "Long Head Movement? Verb Movement and Cliticization in Croatian," *Lingua* 93, 1–58.