PF Merger in Stylistic Fronting and Object Shift

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In this paper I examine stylistic fronting and object shift in Scandinavian. I show that several otherwise puzzling properties of Scandinavian stylistic fronting and object shift, most notably, the subject gap restriction on the stylistic fronting construction and the saving effect of V-topicalization on object shift in auxiliary+participle constructions, discussed by Holmberg (1999), can be accounted for in a principled way under PF merger analyses of these constructions. For the object shift construction, I essentially follow Bobaljik's (1994, 1995) PF merger analysis. For the stylistic fronting construction, I provide a new PF merger analysis, which is extended to the adjacency effect in Bulgarian wh-questions. The PF merger analyses of the Scandinavian constructions in question are shown to provide evidence that adverbs interfere with PF merger and to provide an argument for the multiple spell-out hypothesis. In section 1 of the paper I discuss stylistic fronting. In section 2 I discuss object shift. Section 3 is the conclusion.

1.   Stylistic fronting

1.1. The PF Merger analysis of stylistic fronting

Stylistic fronting in Icelandic affects a variety of different elements, including participles, adjectives, adverbs, particles, and prepositions. ((1b-c) are taken from Maling 1980/1990 and (1d-g) from Jónsson 1991. The elements undergoing stylistic fronting are underlined. Stylistic fronting is also found in Faroese and Old Scandinavian.)

(1)   a.   *Þetta er maður sem <u>ekki</u> hefur leikið nítíu leiki.*
             this is a man that not has   played ninety games
             'This is a man that has not played ninety games.'

       b.   *Það   var hætt   að rigna þegar <u>komið</u> var þangað.*
             it   was stopped   to rain   when arrived was thither
                'It had stopped raining when they/we arrived there.'

c. *Þetta er bærinn   þar sem <u>fæddir</u> eru margir frægustu   menn
þjóðarinnar.*

   this   is the town where   born   are many   most-famous men
the nation(gen)

'This is the town where many of the most famous men of the
nation were born.'

d. *Þetta   eru tillögurnar   sem <u>um</u>   var rætt.*

  these   are the proposals that about was discussed

'These are the proposals that were discussed.'

e. *Þegar <u>fram</u> fara kosningar er alltaf   mikið fjör.*

when forth go   elections   is always a lot   action

'When elections are held, there is always a lot of action.'

f. *Sá sem <u>fyrstur</u> er að skora mark fær sérstök verðlaun.*

he that first   is to score goal gets special prize

'The first one to score a goal gets a special prize.'

g. *Þetta er versta   bók sem <u>skrifuð</u> hefur verið.*

  this is the worst book that written has been

'This is the worst book that has been written.'

Maling (1980/1990) observes a curious restriction on stylistic fronting: the
subject in sentences involving stylistic fronting cannot be lexically realized
in its canonical position (SpecIP). Thus, (1a), where the subject is a wh-
trace (see also (1d,f,g)), contrasts with (2a-b) with respect to the possibility
of stylistic fronting of the negative element, whose base-generated position
is given in (2c).

(2)   a. **Ég held að   Halldór <u>ekki</u> hafi séð   þessa mynd.*

  I   think that Halldor not   has seen this   film

   b. **Ég held að <u>ekki</u> Halldór hafi séð þessa mynd.*

   c. *Ég held að Halldór hafi ekki séð   þessa mynd.*

'I think that Halldor has not   seen this   film.'

The null subject of the stylistic fronting construction can also be an exple-
tive, as shown by (1b). (The alternative is that the embedded clause does not
have a subject at all.) A lexical subject can also appear in a stylistic fronting
construction if located to the right of SpecIP, which is then presumably also
filled by a null expletive. This is illustrated in (1c,e).

Several authors (see Maling 1980/1990, Otósson 1989, Platzack 1987, Rögnvaldsson and Thráinsson 1990, Holmberg 2000, and Hiraiwa 2001, among others) have tried to account for the subject gap restriction by assuming that the landing site of stylistic fronting is the subject position (SpecIP). This analysis is obviously problematic. Given the kind of elements that are affected by stylistic fronting (see (1)), it seems implausible that its landing site is the subject position, SpecIP. Also, it is far from clear that SpecIP would be free for, for example, the negative marker to move to in constructions like (1a). In fact, SpecIP should be filled by a trace of the null operator/relative head. Notice also that the analysis in question rests on the assumption that heads can move to specifiers, which is standardly assumed not to be allowed. For another very serious problem with the analysis the reader is referred to fn. 13. Several authors (see Holmberg and Platzack 1995, Jónsson 1991, Poole 1992, 1996, Santorini 1994, among others) have proposed that stylistic fronting involves adjunction to I, where the finite verb is located. This analysis cannot account for the subject gap restriction (for relevant discussion, see Fischer and Alexiadou 2001 and Holmberg 2000, among others). The above considerations strongly argue against both the movement to SpecIP and the adjunction to I analyses of stylistic fronting. I conclude therefore that we need a new analysis of the phenomenon.

I will now show that the subject gap restriction on stylistic fronting can be accounted for in a principled way if the stylistic fronting construction involves a phonologically null head which is lexically specified as being a verbal affix.[1] The analysis will be based on probably the oldest surviving analysis of generative syntax, Chomsky's (1957) mechanism of affix hopping, revived recently in Halle and Marantz (1993), Bobaljik (1994, 1995), Lasnik (1995), Bošković (in press b) and Bošković and Lasnik (in press), among others. In the recent instantiations, the mechanism is treated as a morphophonological rule that involves merger between an affix and its host in PF under adjacency. Merger is blocked by intervening phonologically realized elements, but not by phonologically null elements such as traces and *pro*. To illustrate how the mechanism works, consider (3a-c), whose structures before PF merger and *do*-support are given in (4).

(3)   a. *John laughed.*
       b. **John not laughed.*
       c. *John did not laugh.*

(4)   a. *[IP John_i I (ed) [VP t_i laugh]]*
       b. *[IP John_i I (ed) [NegP not [VP t_i laugh]]]*

Assume that English I is a verbal PF affix, hence must merge with a verbal element in PF under adjacency. The adjacency requirement is not met in (4b) due to the intervening negative head, which blocks PF merger. *Do*-support, a last resort operation, then takes place to save the stranded affix, deriving (3c). In (4a), the merger is not blocked since no phonologically realized element intervenes between I and the verb. I then merges with the verb, deriving (3a).

   Returning now to the subject gap restriction on stylistic fronting, one way to look at it is to consider it an instance of an adjacency (i.e. affixation) relation with the verb. In other words, the target of stylistic fronting must be adjacent to a verb, the most straightforward interpretation of which is that it is a verbal affix. I therefore propose that elements affected by stylistic fronting move to a functional projection right above IP (as discussed below, the movement involves leftward head-adjunction), whose head, call it F, is a verbal affix.[2] Being a verbal affix, F must merge under PF adjacency with a verb.[3] It follows then that a lexically realized subject cannot intervene between a stylistically fronted element and the verb. Nothing, however, prevents phonologically null subjects from doing so. The relevant structures for (1a-b) and (2b) are given in (5).

(5)   a.   *Þetta er maður sem <u>ekki</u> F t hefur leikið nítíu leiki.*

             this is a man that not   has   played ninety games

       b.   **Ég held að <u>ekki</u> F Halldór hafi séð þessa mynd.*

             I   think that not   Halldor has   seen this   film

       c.   *Það var hætt   að rigna þegar <u>komið</u> F pro var þangað.*

             it   was stopped to rain when arrived   was thither

The subject gap restriction on the stylistic fronting construction is thus accounted for. This is done in a rather straightforward manner without assuming any theoretically anomalous mechanisms, which alternative accounts are quite generally forced to do.[4]

       The current analysis, which treats stylistic fronting as syntactic movement but holds PF responsible for the subject gap restriction, also resolves a serious problem that the apparent optionality of stylistic fronting

raises for the current theoretical framework, which has no natural place for truly optional syntactic movement. (For discussion of optionality of stylistic fronting, see also Poole 1996.)

(6)   a. *Þetta er maður sem   <u>ekki</u>ᵢ+F hefur tᵢ leikið nítíu leiki.*
           this is a man that   not   has   played ninety games
           'This is a man that has not played ninety games.'

       b. *Þetta er maður sem hefur ekki leikið nítíu leiki.*

Under the current analysis, there is no need to take (6) to indicate that stylistic fronting is a syntactically optional operation. The options in (6a-b) can be treated as a result of different lexical choices: If F is inserted into the structure, as in (6a), it obligatorily triggers stylistic fronting. When F is not inserted into the structure, which I assume is the case in (6b), stylistic fronting does not, and cannot, take place. There is then nothing optional syntactically about stylistic fronting, which is conceptually desirable from the current theoretical point of view.

It is also worth noting that, as discussed in Delsing (2001), in Old Scandinavian stylistic fronting appeared to be obligatory with the relative marker *sum* prior to 1350, and with the relative pronoun *hvilkin* even after 1350. The apparent obligatoriness of stylistic fronting in the constructions in question can be readily captured in the current analysis by assuming that the head of the relative clauses in question obligatorily took FP as its complement.

1.2. Extension to Bulgarian questions

The PF merger analysis of the subject gap restriction on Icelandic stylistic fronting can be readily extended to a similar restriction on Bulgarian wh-questions. It is well-known (see Izvorski 1993, Kraskow 1994, Rudin 1986, and Bošković 2001, among others) that, as illustrated in (7), a subject cannot intervene between a wh-phrase located in SpecCP and the verb in wh-questions in Bulgarian, although, as shown convincingly in Izvorski (1993), the verb in such questions does not move to C.

(7)   a. **Kakvo Ana dade na Petko?*
           what   Ana gave to Petko
           'What did Ana give to Petko?'

       b. *Kakvo dade Ana na Petko?*

Izvorski observes that if Bulgarian were to have I-to-C movement in wh-questions, (8b) should be acceptable, with the auxiliary moving to C across the subject in SpecIP, as in its English counterpart *What has Maria forgotten about?* (Notice that the auxiliary in (8) is not a proclitic on the verb, which several other auxiliary forms in Bulgarian are.)

(8) a. *Maria beše zabravila za   sreštata.*
         Maria was forgotten about the meeting.
         'Maria had forgotten about the meeting.'

     b. **Za kakvo beše Maria zabravila?*
         for what   was Maria forgotten
         'About what had Maria forgotten?'

     c. cf. *Za kakvo beše zabravila Maria?*

Also, if Bulgarian were to have verbal movement to C in questions, which means that the subject following the verb can be located in SpecIP, the adverb in (9b) should have both the low, manner reading, and the high, sentential subject-oriented adverb reading, just like the adverb in (9a) and English constructions of this type. (Izvorski gives *What did John carefully read*, where the adverb can have either the manner or the subject-oriented adverb reading.) However, the expectation is not borne out. Based on these data, Izvorski concludes that Bulgarian wh-questions do not involve verbal movement to C. Rather, the verb is located lower than C in Bulgarian questions. Still, a subject cannot intervene between the interrogative C and the verb, as (7a) shows.[5]

(9) a. *Petko pravilno otgovori   na vŭprosa   im.*
         Petko correctly answered to the question theirs
         'Petko did the right thing when he answered their question.'
         'Petko gave a correct answer to their question.'

     b. *Na kakvo otgovori   Petko pravilno?*
         to what   answered Petko correctly
         '*What was Petko right to answer?'
         'What did Petko give a correct answer to?'

I conclude that Bulgarian wh-questions exhibit a subject gap restriction, similar to the subject gap restriction on Icelandic stylistic fronting. In fact, under the current analysis of stylistic fronting, the parallel is complete. In both Bulgarian wh-questions and Icelandic stylistic fronting constructions a

null head has to be adjacent to a finite verbal element located in a lower head position. I propose to account for the subject gap restriction on Bulgarian wh-questions in the same way as the subject gap restriction on the Icelandic stylistic fronting construction. In particular, I propose that the phonologically null interrogative C in Bulgarian is a verbal affix, hence must merge with a verb under PF adjacency. This straightforwardly explains the adjacency effect in (7). Although lexical subjects in Bulgarian can either move to SpecIP or stay in SpecVP overtly, the subject in wh-questions has to remain in SpecVP.[6] If it moves to SpecIP, as it does in (7a), it blocks merger of the interrogative C and the verb. As a result, the affix requirement of the interrogative C cannot be satisfied.

(10)   a.   *[$_{CP}$ Kakvo C [$_{IP}$ dade Ana na Petko]]*
              └─────┘

       b.   *[$_{CP}$ Kakvo C [$_{IP}$ Ana dade na Petko]]*
              └───────────┘
                    *

Being forced to remain in SpecVP, the subject must follow the participle *zabravila* in (8), and the adverb *pravilno*, which follows the subject, can have only the low, manner reading in (9b). (To have the high, subject-oriented adverb reading, the adverb would have to precede the verb. Notice that the participle undergoes overt movement outside of VP in Bulgarian; see Izvorski 1993 and Bošković 1997b.)

    The contrast between the wh-question in (7a) and the yes-no question in (11) provides a confirmation of the current analysis.

(11)   *Dali Ana dade na Petko knigata?*
        Q   Ana gave to Petko the book
        'Did Ana give Petko the book?'

Dali, the complementizer in yes-no questions, is clearly not a verbal affix. It is a prosodic word bearing stress and therefore is not expected to be subject to the adjacency requirement the null interrogative C is subject to under the current analysis.

    The PF merger analysis of the adjacency effect in Bulgarian fits well with a conclusion concerning interrogative C-insertion in Bulgarian and Serbo-Croatian (SC) reached in Bošković (2002a), where it is argued that wh-movement must take place overtly in Bulgarian, but not in SC.[7] I attribute

the difference to the timing of the interrogative C-insertion in Bulgarian and SC: the C, whose presence triggers immediate wh-movement, must be inserted in overt syntax in Bulgarian, but not in SC, hence wh-movement must take place overtly in Bulgarian, but not in SC. Why is there a difference in the timing of C-insertion between the two languages? In Bošković (2000) I suggest that the same difference exists between French and English and attribute it to a PF requirement on the interrogative C which is present in English, but lacking in French.[8] In particular, I suggest that the interrogative C is a PF verbal affix in English, but not in French. As a result, the C must be inserted into the structure in overt syntax in English, but not necessarily in French. If the interrogative C were to be inserted into the structure in LF in English, which I argue is a possibility in French and results in wh-in-situ questions, the PF affix requirement could not be satisfied and the derivation would crash.[9] Independent evidence for the difference between English and French is provided by the fact that S-Aux Inversion is obligatory in English, but not in French questions, as illustrated in (12). (More precisely, the fact that the interrogative C must be adjacent to a verb in PF in English, but not in French indicates that the C is a verbal affix in English, but not in French. See also Bošković 2000 for explanation why S-Aux inversion does not take place in English embedded questions.)

(12) a. *Qui   tu   as   vu?*
          whom you have seen
          'Who did you see?'

   b. *Who you have seen?*

Bulgarian and SC differ in the same way. Thus, the counterpart of Bulgarian (7), repeated in (13a), is acceptable in SC, as illustrated in (13b).

(13) a. *Kakvo Ana dade na Petko?*
          what Ana gave to Petko
          'What did Ana give to Petko?'

   b. *Šta   Ana dade Ivanu?*
          what Ana gave Ivan
          'What did Ana give to Ivan?'

The difference between Bulgarian and SC can be accounted for if the interrogative C is a verbal affix in Bulgarian, but not in SC. The PF merger analysis thus provides a uniform account of the different behavior of the

two languages with respect to the adjacency effect in questions and the obligatoriness of overt wh-movement.

It is worth noting here that, as discussed in Izvorski (1993), the adjacency effect is not present in Bulgarian relative clauses and in questions with the question word *zašto* 'why'.

(14) a. *Pismoto, koeto deteto   napisa, e na masata.*
          the letter which the child wrote   is on the table
          'The letter which the child wrote is on the table.'

      b. *Zašto Ivan napusna universiteta?*
          why   Ivan left   the university
          'Why did Ivan leave the university?'

This can be interpreted as indicating that the relative C is not a verbal affix and that *zašto* at least can occur in C. (Notice in this respect that *što* can serve as a complementizer in SC (see Bibović 1971 and Browne 1980), a closely related language, and used to be able to do so in Bulgarian up to the beginning of the 20th century.)

To summarize the section on Bulgarian, we have seen that the PF merger analysis explains the otherwise mysterious subject gap restriction on Bulgarian wh-questions, which is treated on a par with the subject gap restriction on the Icelandic stylistic fronting construction. In both languages, the reason for the restriction is phonological. More precisely, in both languages, a phonologically null head which is lexically specified as a verbal affix takes as its complement the IP where the verb with which it needs to merge with is located. If a lexical subject is located in SpecIP the merger is blocked, resulting in a Stranded Affix Filter violation. The fact that the current analysis provides a uniform account of the subject gap restriction on Icelandic stylistic fronting and the subject gap restriction on Bulgarian wh-questions should be taken as an argument for the analysis, especially in light of the fact that the PF merger analysis of the subject gap restriction on Bulgarian wh-questions has independent motivation, as demonstrated above.[10]

The above discussion also provides an illustration of the ease with which the PF merger/affix hopping mechanism captures adjacency relations between elements that belong to different syntactic projections, which syntax itself is hard pressed to deal with. In fact, the natural conclusion of the above discussion is that the PF merger/affix hopping analysis should be considered the null hypothesis when faced with adjacency relations between elements belonging to different syntactic projections, one of which is phonologically weak.

1.3. PF Merger and adverbs

Returning to stylistic fronting, the PF merger analysis of stylistic fronting also gives us an insight into the effect of adverbs on PF merger. Consider (15).

(15)   *Mary quickly left.*

On the basis of constructions such as (15) Bobaljik (1994, 1995) proposes that adverbs or, more generally, adjuncts, do not count for the purpose of PF adjacency relevant to merger. The assumption is obviously problematic. Ochi (1999), however, gives a deduction of Bobaljik's assumption. He follows Lebeaux (1988), Chomsky (1993), Bošković and Lasnik (1999), and Stepanov (2001a,b) in assuming that adverbs (more precisely, adjuncts) can be inserted into the structure acyclically and shows that given the assumption and the multiple spell-out hypothesis, according to which the phonology has multiple derivational access to the syntax (see Bresnan 1971, Chomsky 1999, 2000, Epstein 1999, Epstein et al 1998, Uriagereka 1999, and section 2), the adverb adjacency problem disappears. (It is important to bear in mind that *both* multiple spell-out *and* late adverb insertion are crucially needed in Ochi's account.) For example, the adverb *quickly* in (15), which Ochi assumes intervenes between I (more precisely, Tense) and the verb, can be inserted into the structure acyclically after the structure, with I and the verb adjacent, has already been sent to the phonology. PF merger can then take place prior to adverb insertion. The structure is sent again to the phonology after adverb insertion. However, the presence of the adverb is now irrelevant since the merger has already taken place. The derivation in question is given in (16).[11]

(16)   a.   Send *John Infl leave* to PF, merge Infl and *leave* into *left*.

      b.   Insert the adverb in the syntax and send the structure again to PF.

Lasnik (in press) suggests an alternative analysis of constructions like (15) that does not need to say anything special about adverbs. He suggests that adverbs like *quickly* (the analysis is extendable to other 'intervening' adverbs in English) can be located above Tense so that they do not interfere with the merger of Tense and the verb. Evidence that *quickly* can occur above Tense is provided by (17), given that *do* is located under Tense.[12]

(17)   *John said that he would leave, and he quickly did.*

This analysis removes the main reason for making adverbs special when it comes to PF merger. The current analysis of stylistic fronting suggests that this is the right way to proceed. As illustrated in (18), adverbs cannot occur between a stylistically fronted element and the verb (cf. (1a)).[13]

(18) *_Þetta er maður sem <u>ekki</u> í gær   hefur leikið nítíu leiki._
      this is a man that not yesterday has   played ninety games
      'This is a man that has not played ninety games yesterday.'

If we adopt the Bobaljik/Ochi analysis of the failure of adverbs to block PF merger in (15), which exempts adverbs from PF adjacency, we would have to stipulate that the adverb cannot be inserted between the stylistically fronted element and the verb (i.e., that there is no proper position for the adverb between the two). The desired result can be achieved in a more principled way under Lasnik's analysis of the lack of the adjacency effect in (15), which does not exempt adverbs from adjacency relevant to PF merger and accounts for the lack of the adjacency effect in constructions like (15) by placing the adverb above the null head undergoing merger. Most authors (see Holmberg and Platzack 1995, Jónsson 1991, Poole 1992, 1996, Santorini 1994, among others) assume that Icelandic stylistic fronting involves head-movement, which under the current analysis is instantiated as left-adjunction to F, in accordance with Kayne's (1994) LCA. There is considerable evidence that Icelandic Stylistic fronting indeed involves head movement. Thus, it is generally restricted to heads. Notice, for example, that the participle and the adjective alone undergo stylistic fronting in (19), taken from Jónsson (1991), leaving their complements behind.

(19) a. _Þetta er maður sem <u>leikið</u>$_i$ hefur t$_i$ nítíu   leiki._
          this is a man that played has   ninety games
          'This is a man that has played ninety games.'
      b. _Þeir sem <u>ánægðir</u>$_i$ eru t$_i$ með kaupið   kvarta   ekki._
          those who content   are   with the pay complain not

Notice also that stylistic fronting does not seem to have any semantic or pragmatic effects (see Holmberg 2000). This is not surprising under the head movement analysis since head movement generally lacks such effects (see Chomsky 1999). The fact that stylistic fronting is clause-bound also fits well with the head-movement analysis.[14]
    Returning to (18), given that stylistic fronting in Icelandic involves head movement (i.e. leftward head adjunction to F), there is simply no space

between the stylistically fronted element and the null head undergoing merger with the verb for the adverb to intervene. No Spec position or XP/X'-adjoined position is available, as in English (15), where the adverb can be either X'-adjoined, XP-adjoined, or even located in SpecXP, depending on which assumptions concerning the split I hypothesis and adverb placement (see Cinque 1998 on the latter) are adopted. We thus have here evidence that adverbs do count for the purpose of PF adjacency relevant to merger, i.e. that they block PF merger, just like other phonologically realized elements. This is certainly the null hypothesis (see section 2, in particular, example (34) for additional evidence that adverbs interfere with PF merger).This means that the analysis that accounts for the grammaticality of (15) by placing the adverb above the null head undergoing merger is more adequate than the analysis that accounts for such constructions by making adverbs irrelevant to PF merger.[15]

2.   Object shift

In this section I show that certain otherwise puzzling properties of Scandinavian object shift can also be accounted for in a principled way under a PF merger analysis. The analysis is also shown to have important consequences for the syntax-phonology interface. In particular, it provides an argument for the multiple-spell out hypothesis (see Bresnan 1971, Chomsky 1999, 2000, Epstein et al 1988, Franks and Bošković 2001, and Uriagereka 1999, among others), on which syntax and phonology interact derivationally, with the syntax sending information to the phonology at more than one point, that is, throughout the derivation.

2.1. Participle movement and object shift in auxiliary+participle constructions

It is well-known that, as discussed by Holmberg (1986), object shift in Scandinavian depends on V-movement. As illustrated by Swedish (20), object shift can take place in main verb V-2 clauses, but not in aux+participle and embedded clauses, where the main verb does not undergo movement.[16]

(20) a.   *Jag kysste$_j$ [$_{AgroP}$ henne$_i$ [$_{VP}$ inte [$_{VP}$ t$_j$ t$_i$]]]*
            I   kissed   her   not
            'I didn't kiss her.'

b. **Jag har [AgroP hennei [VP kysst ti]]*
     I   have   her   kissed
    'I have kissed her.'

c. *Jag har [AgroP [VP kysst henne]]*

d. **…att [IP jag [AgroP hennei [VP kysste ti]]]*
        that I   her   kissed

e. *…att [IP jag [AgroP [VP kysste henne]]]*

Holmberg (1999), however, makes a very interesting observation that object shift can take place even in aux+participle constructions if the participle undergoes movement to SpecCP. (Holmberg argues that only the verbal head moves to SpecCP in (21) and calls this movement V-topicalization. The alternative Holmberg argues against is remnant VP-fronting, which would have to follow object shift. The issue is addressed below.)

(21) a. *Kysst   har   jag henne inte (bara hållit henne i   handen).*
          kissed have I   her   not   only held her   by   the hand
          'Kissed her I haven't (only held her by the hand).'

      b. *Sett har han mej kanske (men han vet   inte vad   jag heter).*
          seen has he   me perhaps but he   knows not what I   am-called
          'Seen me he may have done (but he doesn't know my name).'

As Holmberg shows, this type of construction invalidates Chomsky's (1993) equidistance account of the dependency of object shift on V-movement (see also Bobaljik and Jonas 1996). Under Chomsky's account, in order for the object to be able to skip the subject in SpecVP, and for the subject to be able to skip the shifted object when moving to SpecTP, it is necessary for the main verb to move not only to Agro but also to T. This clearly cannot take place in (21). The auxiliary rather than the participle moves to T in (21).

To account for the saving effect of V-topicalization on object shift in aux+participle constructions, Holmberg proposes an analysis that treats object shift as a phonological operation and stipulates a locality condition which prevents object shift from applying across a phonologically visible category asymmetrically c-commanding the object position except for adjuncts. (As noted above, the negative marker is considered to be an adjunct.)[17] Given this, V-movement in (21) must precede object shift. Since, according to Holmberg, V-movement (more generally, movement to SpecCP) is a syntactic operation, object shift then must be a phonological operation.

If it were to take place in the syntax, the cycle would be violated in constructions like (21).

As discussed in Chomsky (1999), Holmberg's analysis is problematic in several respects. The proposed locality condition is rather strange and does not fall together with locality conditions on other putative cases of PF movement. The exception for adjuncts is also obviously problematic. Given that, as shown convincingly in Diesing (1996), object shift is a semantically "loaded" operation,[18] another problem is the semantics/phonology interaction that is necessary under Holmberg's analysis. Such an interaction cannot be established under the standard conception of the grammar, where semantic effects are restricted to narrow syntax, the post-spell out PF derivation not having effect on semantics.[19] Another problematic aspect of Holmberg's analysis is his stipulation that [-focus] elements (elements that undergo object shift are specified as [-focus] according to Holmberg) must be governed by a [+focus] element. This is so especially in light of the fact that Holmberg's [+focus] elements represent an arbitrary collection of categories that does not fit into any of the standard conceptions of focus.[20] (See the discussion below for another problem with Holmberg's analysis which has to do with the phrase structure status of the element undergoing topicalization in (21). For problems with Holmberg's analysis as well as alternative proposals, see also Erteschik-Shir 2001 and Josefsson 2001.)

Given all of these problems, I conclude that though very interesting, Holmberg's analysis cannot be maintained. So, how can we explain the saving effect of V-topicalization on object shift in aux+participle constructions? In the next section I will show that Bobaljik's (1994, 1995) PF merger analysis of the impossibility of object shift in (20b) can provide a straightforward account of the acceptability of (21) if we adopt the multiple spell-out hypothesis, on which the syntax sends information to the phonology throughout the derivation.

2.2. Object shift and multiple spell-out

Bobaljik (1994, 1995) argues that object shift is ruled out in Scandinavian embedded and aux+participle clauses for morphophonological reasons, namely, due to a violation of the requirement that an affix which is to be phonetically realized on a stem must be adjacent to it in PF. As a result, even if a verb in Swedish does not move to I overtly, the verb and I still must be adjacent in PF, that is, they must undergo PF merger. In (20d), the PF adjacency requirement cannot be satisfied due to the intervening shifted

object. The problem does not arise in (20e), where the object remains in situ. As for (20b-c), Bobaljik posits a participial affix, located above the shifted object (PartP, headed by the affix, is the complement of the auxiliary), which must merge under adjacency with the participle in PF. The account of (20d-e) then readily extends to (20b-c).The relevant structures are given in (22).

(22) a. **Jag har [$_{PartP}$ Part [$_{AgroP}$ henne$_i$ [$_{VP}$ kysst t$_i$]]]*
    I   have   her   kissed

  b. *Jag har [$_{PartP}$ Part [$_{AgroP}$ [$_{VP}$ kysst henne]]]*

As one argument for his analysis, Bobaljik points out that in head-final Germanic languages, object shift can take place even in embedded and aux+participle clauses, i.e. in the absence of V-movement. This is expected under his analysis since due to the head final nature of these languages, the relevant verbal elements and I and Part remain linearly adjacent even if object shift takes place overtly. (The following Dutch example is taken from Bobaljik 1995.)

(23)

…dat veel   mensen [$_{PartP}$ [$_{AgroP}$ dat boek [$_{VP}$ gisteren   gekocht]] Part] hebben.
 that many people   that book   yesterday bought   have
'… that many people bought that book yesterday.'

Let us now consider the contrast between (20b) and (21). As discussed above, under Bobaljik's analysis, (20b) is ruled out because the shifted object intervenes between the participle and the null head (Part) the participle is required to merge with (see the structure in (22a)). I will show now that we can account for (21) under Bobaljik's analysis without any additional assumptions if we adopt the multiple spell-out hypothesis, which allows the phonology to have access to intermediate syntactic structures by having the syntax send structures to the phonology throughout the derivation.

    Consider how the saving effect of V-topicalization on object shift in aux+participle constructions, illustrated in (21), would be treated under the PF merger+multiple spell-out analysis. Suppose that the verb undergoes successive cyclic movement to SpecCP and that during the movement, it lands at some point to a position that is adjacent to the null head that it is required to merge with, both of which are reasonable assumptions. (For discussion concerning what the position in question is, see (26) below.) If the structure can be sent to the phonology at this point, certainly a possibility in

the multiple spell-out model, the participle and the null head will be adjacent in the phonology so that the merger will be able to take place.[21] The participle will proceed with movement to SpecCP. I assume that the morphological combination of the null affix head and the participle is licensed at the point of merger during the derivation.

The multiple spell-out hypothesis thus makes it possible to account for the saving effect of V-topicalization on object shift in aux+participle constructions without assuming that object shift is a phonological operation, a problematic assumption as discussed above, and without requiring phonology and semantics to interface. Furthermore, in contrast to Holmberg's analysis, where object shift takes place acyclically after movement to SpecCP in constructions like (21), under the current analysis object shift precedes movement to SpecCP, obeying the cycle. This removes Holmberg's main reason for pushing object shift outside of narrow syntax. Notice also that the merger is blocked in (20b) even if multiple spell-out is adopted. Given the cycle, the object must move in front of the participle before Part is merged into the structure. At no point in the derivation are then the participle and Part adjacent in (20b) (see in this respect the more detailed structure in (22a)).[22] [23]

Consider now the phrase-structure status of the element located in SpecCP in (21). For Holmberg, it is crucial that the element has X^0 status, i.e., we have to be dealing here with head movement to SpecCP. The alternative analysis, remnant VP fronting, cannot be adopted under Holmberg's set of assumptions since this analysis requires object shift to precede topicalization. This cannot happen if topicalization is syntactic movement and object shift phonological movement, as Holmberg assumes. Under the multiple spell-out analysis, it is not necessary to adopt the non-standard assumption that heads can move to specifiers. More precisely, the multiple spell-out analysis makes it possible to treat movement to SpecCP in (21) as an instance of remnant VP fronting rather than fronting of an X^0 element (on remnant VP fronting, see Den Besten and Webelhuth 1987, Huang 1993, and Müller 1998, among many others).

Holmberg points out a potential problem for the remnant phrasal preposing analysis. He observes that it is impossible to save an object shift derivation for an aux+participle construction by topicalizing a VP containing a small clause.

(24)   *Hört hålla   föredrag har   jag henne inte.*
       heard give   talk   have I   her   not

The ungrammaticality of (24) is surprising given that topicalizing a VP containing a small clause is otherwise possible, as shown by (25). (The phrase undergoing topicalization in (25) could actually be larger than VP. I leave open what the phrase is and refer to it as VP for ease of exposition.)

(25)   *Hört   henne hålla föredrag   har   jag inte.*
      heard her   give talk   have I   not

Holmberg accounts for the data under consideration by assuming that we are dealing here with V-movement to SpecCP, rather than remnant VP movement. The assumption is unnecessary under the multiple spell-out analysis. Recall that the reason why the shifted object does not interfere with the merger of the participle and the null head in (21) is that the participle is placed to a position adjacent to the null head during movement to SpecCP. Suppose now that the position in question precedes the null head. (The position may in fact be SpecPartP.) In other words, the relevant configuration is (26a) rather than (26b). This amounts to assuming that there is no position for the element moving to SpecCP to move through between the shifted object and Part, a plausible assumption.

(26)   a.   *…[$_{VP}$ participle] Part [$_{AgroP}$ object…*
      b.   *…Part [$_{VP}$ participle] [$_{AgroP}$ object…*

The small clause following the participle in (24) now disturbs the adjacency between the participle and Part, blocking the merger.[24] The problem does not arise in (25), where the participle is adjacent to the null head at least prior to VP-fronting to SpecCP. (I return to the placement of negation in (24)–(25) below, where I argue that the negation can be located above Part. For the moment, I disregard it.)

(27)   *…[$_{PartP}$ Part[$_{AgroP}$ [$_{VP}$ hört   henne…]]]*
                        heard her

If the structure is sent to the phonology at this point, the merger can take place. Recall that in (24), the participle and the null head are not adjacent prior to the movement because of the shifted object.

    The multiple spell-out analysis thus accounts for the contrast between (24) and (25) without the assumption that a head moves to SpecCP in (21). The analysis blames the ungrammaticality of (24) on the impossibility of merger of the participle and the null head. Strong confirmation that doing

this is on the right track is provided by the fact that constructions like (24) are acceptable in German, as noted in Holmberg (1999). (The observation is attributed to Gert Webelhuth.)

(28)   *Rauchen gelassen hat er seine Tochter   nicht.*
       smoke   allowed has he his   daughter not
        'He hasn't allowed his daughter to smoke.'

The merger problem does not arise in (28). As discussed in Bobaljik (1995), German being head-final, a shifted object does not interfere with the merger of the participle and Part. The heads in question are adjacent at one point in German regardless of whether the participle is moved to SpecCP even when the object undergoes object shift. Merger can then be licensed in (28) if the structure is sent to the phonology prior to remnant preposing of the VP, when the relevant part of the structure is as shown in (29).

(29)   *[PartP [VP ...rauchen gelassen] Part...]*
              smoke   allowed

The contrast between (24) and (28) thus receives a straightforward account under the multiple spell-out analysis.

Considering the movement that places a participle in SpecCP to be VP preposing rather than V-preposing is desirable in light of the ungrammaticality of constructions like (30).

(30) a.   *?*Sett har   jag honom inte röka (men jag har   känt   hans andedräkt).*
            seen have I   him   not smoke (but I   have smelled   his breath)

      b.   **Sett har jag inte Per röka   (men jag har   känt   hans andedräkt)*
            seen have I   not Per smoke (but I   have smelled his breath)

The ungrammaticality of these constructions strongly indicates that we are not dealing with V-movement. Under the remnant VP preposing analysis of (21), the constructions in (30) can be readily accounted for if the small clause predicate cannot move outside of the VP, which is a prerequisite for remnant VP preposing. (In fact, there seems to be no proper motivation for this movement.) I therefore conclude that the saving effect of topicalization of a constituent containing the participle on object shift in aux+participle

constructions can be accounted for without undesirable consequences concerning the status of the saving movement (the movement can be considered remnant phrasal movement) if multiple spell-out and Bobaljik's PF merger analysis are adopted.

2.3. Where is *inte* located?

Before concluding the discussion of object shift in Scandinavian I will address one issue that Holmberg raises as a problem for Bobaljik's PF merger analysis. Bobaljik assumes that elements like *inte* mark the left edge of the VP. More precisely, he assumes that they are left-adjoined to VP. Furthermore, he assumes that both the landing site of object shift and the null head that merges with the participle are higher than *inte*, the null head being higher than the shifted object. Holmberg observes that these assumptions are untenable for Mainland Scandinavian based on constructions like (31), which indicates that *inte* is higher in the structure than the auxiliary, which on Bobaljik's analysis is supposed to be higher than the shifted object and the null head the participle merges with. (Recall that the auxiliary remains in its base-generated position in Swedish embedded clauses.) We thus appear to have a contradiction at hand.

(31) a. *Det är möjligt [att Per inte har kysst henne].*
     it   is possible that Per not has kissed her

    b. **Det är möjligt [att Per har inte kysst henne].*

The problem is actually even more serious. Recall that Bobaljik assumes that adjuncts like *inte* are invisible to the operation of merger and therefore do not disrupt the adjacency necessary for merger to take place. However, we have seen in the discussion of stylistic fronting in section 1 that the assumption is not only conceptually, but also empirically problematic. The facts discussed in that section indicate that, as would be expected, adjuncts are visible in PF and interfere with merger. Given this conclusion, even (32a) becomes problematic if the negation is adjoined to VP since the negation should block the merger of the participle and Part, as shown in the structure in (32b). (Bobaljik would deal with such constructions by assuming that adjuncts do not block merger.)

(32) a. *Per har inte kysst henne.*
         Per has not kissed her

    b. *Per har [$_{PartP}$Part [$_{AgroP}$ [$_{VP}$ inte [$_{VP}$ kysst henne]]]]*

I conclude, therefore, that the negation must be higher than Part in (32a). (32a) can be readily accounted for if we assume that the negation can be adjoined not only to the main verb VP, as Bobaljik does, but also to the VP headed by the auxiliary, a rather natural assumption. The negation can then be located in this higher position in (32a).

(33) *Per har$_i$ [$_{VP}$ inte [$_{VP}$ t$_i$ [$_{PartP}$ Part [$_{AgroP}$ [$_{VP}$ kysst henne]]]]]*

However, this may not be enough to account for (31a). If the embedded clause auxiliary needs to merge with I, which is what Bobaljik assumes, the negation would intervene between the two elements even if it is adjoined to the VP headed by the auxiliary. *Inte* in (31a) in fact raises the same kind of problem as *quickly* does in (15). I therefore suggest that (31a) should be accounted for in the same way as (15). This means that *inte* would be attached in (31a) wherever *quickly* is attached in (15). (See the discussion in section 1. In fact, *inte* in (32a) might also be located in this position, instead of being adjoined to the higher VP.)

    As for (31b), there is in principle nothing wrong with the position of the negation, which occupies the lower neg position (adjoined to the main verb VP) in (31b). (Recall that the auxiliary does not move in (31b), which means that (31b) cannot be analyzed in the same way as (32a).) The problem is that as a result of being placed in the lower position, the negation intervenes between the participle and Part, blocking the merger of the two heads.

(34) **Det är möjligt [$_{CP}$ att Per [$_{VP}$ har [$_{PartP}$ Part [$_{AgroP}$ [$_{VP}$ inte [$_{VP}$ kysst henne]]]]]]*

Under this analysis, nothing prevents us from locating the negation in the lower position in (20a) and (21). Notice also that in constructions like (35a), whose structure is given in (35b), both the shifted object and the negation now interfere with the merger of the participle and Part.

(35) a. **Per har henne inte kysst.*
         Per has her   not kissed

    b. *Per har$_i$ [$_{VP}$ t$_i$ [$_{PartP}$ Part [$_{AgroP}$ henne [$_{VP}$ inte [$_{VP}$ kysst]]]]]*

3. Conclusion

I have shown that the subject gap restriction on stylistic fronting and the saving effect of V (i.e. VP)-topicalization on object shift in aux+participle constructions receive a principled account under the PF merger analysis of these constructions. Furthermore, this is accomplished without positing any kind of phonology/semantics interaction. The analysis of the subject gap restriction on stylistic fronting is extended to the adjacency effect in Bulgarian questions. The PF merger analysis of Scandinavian stylistic fronting and object shift is shown to provide empirical evidence that adverbs do interfere with PF merger. The PF merger analysis of object shift also provides evidence for the multiple spell-out hypothesis. The argument for multiple spell-out from Scandinavian object shift is straightforward: PF needs to have access to intermediate syntactic representations, which is possible under the multiple spell-out model, but not under the standard Y-model. The argument for multiple spell-out is at the same time an argument for a derivational model of the grammar and therefore represents a serious challenge for non-derivational theories like Optimality Theory.

Notes

1. See Poole (1997) for a somewhat related PF account, which I became aware of only after this paper was originally written. The crucial aspect of Poole's account is his claim that the finite verb in stylistic fronting constructions is an enclitic which undergoes rightward movement in PF in order to get proper prosodic support (Prosodic Inversion in Halpern's 1995 terminology). The analysis faces several serious problems. First, as Poole himself notes, there are stylistic fronting constructions in which the finite verbal element is clearly not a clitic. Second, in languages in which an enclitic follows a complementizer in the syntax, the enclitic typically encliticizes to the complementizer (see Bošković 2001). Given this possibility, Poole's enclitic should not, hence could not (under Poole's assumptions), undergo the necessary rightward PF movement.

2. Note that F is phonologically weak and must be adjacent to a verb, which is the definition of a verbal affix.

3. More precisely, finite verb, given that stylistic fronting cannot occur in infinitives. Examples (ia-b) from Holmberg and Platzack (1995: 117-118) show this. (Notice that the infinitival marker *að* is in C and the verb is in I in Icelandic infinitival clauses.)

(i) a. *María lofaði   að (*<u>ekki</u>/<u>alltaf</u>) lesa (ekki/alltaf) bókina.*
        Mary promised to   not/always read not/always the book
    b. **María lofaði   að <u>tekið</u> hafa út   peninga úr   bankanum á morgun.*
        Mary promised to taken have out money   from   the bank   tomorrow
    c. cf. *María lofaði að hafa tekið út peninga úr bankanum á morgun.*

Notice that Mainland Scandinavian lost stylistic fronting when it lost agreement (see Falk 1993 and Holmberg and Platzack 1995), which indicates that F, whose precise nature I leave open, is (or can be) involved in the agreement system, possibly through selection for AgrsP or by being hosted by an agreeing verb. (The fact that stylistic fronting cannot occur in infinitives may be related to this.)

It is worth noting that Anderson (1993) also suggests that stylistic fronting is movement to a position above the subject. (Notice that this accounts for (2a).) Anderson's analysis, however, does not seem to leave room for the optionality of the process, discussed below with respect to (6a-b). The reader is also referred to Fischer and Alexiadou (2001), who also argue that stylistic fronting constructions introduce an additional functional projection.

4. It is worth noting that positing a phonologically null affix does not represent a departure from standard assumptions concerning what kind of elements can function as affixes. Thus, it is standardly assumed that English (i) contains a phonologically null Tense affix, hence the necessity of *do*-support in (ii) (*not* intervenes between the affix and the verb).

(i)   *They work all the time.*
(ii) a. *They do not work all the time.*
      b. **They not work all the time.*

5. Note that given that the verb is located lower than C in questions, the subject that follows the verb, as in (7b) and (9b), must be located lower than SpecIP, namely in SpecVP (see the discussion below).

6. In Bošković (2001) I suggest that the subject actually moves to SpecIP in questions, but is pronounced in SpecVP to satisfy the affix requirement on the C. (Bobaljik 1995 gives a similar analysis of Scandinavian object shift; see fn. 22.) The analysis is based on the assumption that a lower copy of a non-trivial chain can be pronounced iff this is necessary to avoid a PF violation (see Franks 1998). As discussed in Bošković (2001), the assumption enables us to re-analyze a number of constructions that were previously argued to involve PF movement without any PF movement.

7. Among other things, the analysis accounts for the contrast between SC (i) and Bulgarian (ii) with respect to Superiority. (See Bošković 1999, 2002a for additional arguments. Notice that both SC and Bulgarian move all wh-phrases. However, I show that none of the fronted wh-phrases in SC (i) and (13b) has to be located in SpecCP overtly, which is not the case with their Bulgarian counterparts.)

   (i) a. *Ko   koga voli?*
            who whom loves
            'Who loves whom?'
        b. *Koga ko voli?*
   (ii) a. *Koj kogo   običa?*
            who whom loves
        b. **Kogo koj običa?*

8. The difference is correlated with the possibility of wh-in-situ in the two languages. In both languages insertion of the interrogative C triggers wh-movement. Since, in contrast to English, the interrogative C does not have to be inserted overtly in French, unlike in English, wh-movement does not have to take place overtly in French (see (i)). Under this analysis, the different behavior of the two languages with respect to wh-in-situ is correlated with the different behavior of the two languages with respect to S-Aux inversion, discussed directly below.

   (i) a. *Tu as   vu   qui?*
            you have seen who
            'Who did you see?'
        b. **You saw who?*

9. More precisely, the presence of phonological information in LF would cause a crash. (The same thing would happen if, for example, *John* were to be inserted into the structure in LF.) If English interrogative C (or *John* for that matter) is inserted into the structure overtly, the phonological information from its lexical entry is stripped off when the structure is sent to PF, so that it does not enter LF.

10. The analysis of the adjacency effect in Bulgarian wh-questions might be extendable to the widely discussed adjacency effect in Spanish wh-questions (see Torrego 1984 for an early discussion and Suñer 1994 for arguments that the verb

in (ia) does not raise to C), which is similar to the adjacency effect in Bulgarian. The Spanish construction, however, raises several questions that do not arise in Bulgarian which I will not attempt to deal with here.

(i) a. *Qué   dijo Juan?*
         what said Juan
         'What did Juan say?'
     b. **Qué Juan dijo?*

11. Questions raise a potential problem for Ochi's analysis.

    (i) a. *What did John buy?*
         b. **What John bought?*

Suppose that spell-out applies before the CP projection is inserted (i.e. before wh- and I-to-C movement). The affix property of I could then be satisfied. The question then arises why *do*-support must take place in (i). To account for this, Ochi suggests, following Bošković (2000) (see the discussion of (12) above), that the interrogative C in (i) is also a verbal affix.

12. According to Lasnik, all potentially intervening adverbs pattern with *quickly* with respect to (17), even the adverbs, such as *quickly* itself, that normally occur below auxiliaries (cf. Ochi's **Peter quickly will leave* and *Peter will quickly leave*). Lasnik's examples involve the adverb *completely*.

    (i) a. *John will completely lose his mind.*
         b. **John completely will lose his mind.*
         c. *John partially lost his mind, and Bill completely did.*

It thus appears that certain adverbs under certain circumstances (ellipsis and avoiding blocking PF merger) can occur higher in the structure than they normally do, a rather curious state of affairs which I leave open here. For much relevant discussion, see Oku (1998).

13. Jónsson (1991) observes that the same holds for parentheticals.

    (i) *Ég hélt   að byrjað, (*eins og María hafði sagt), yrði   að opna*
         pakkana   strax

         I   thought that started   like   Mary had   said   would-be to open   the
         presents right

         eftir kvöldmatinn.

         after supper

         'I thought that, like Mary said, he would start opening the presents right after the supper.'

Significantly, as observed by Jónsson, a parenthetical can occur between a subject and the verb.

    (ii) *Ég hélt   að Jón, eins og sannur skáti,   myndi hjálpa gömlu*
         konunni að komast yfir   götuna.

         I   thought that Jón like a   true   Boy Scout would help   old   the
         lady   to get   across the street

The above contrast strongly argues against analyses that place stylistically fronted elements in SpecIP.

Holmberg (2000) offers an account of (i) based on his claim that stylistic fronting affects the closest element with a phonological matrix to I, the parenthetical being closer to I than *byrjað*. However, it seems that this should not matter since Holmberg claims that only elements that themselves can undergo stylistic fronting function as interveners in the relevant sense. (Thus, for Holmberg, auxiliaries *vera* 'be' and *hafa* 'have', which in most cases cannot undergo stylistic fronting, do not count as interveners. Note, however, that Holmberg makes contradictory claims concerning which elements count as interveners in the relevant respect.) It should be also pointed out that Holmberg's intriguing claim that stylistic fronting picks the closest element with a phonological matrix faces a host of empirical problems, as discussed by Sigurðsson (1997) and Holmberg himself, and thus at present seems to be empirically unmaintainable.

14. One question that arises under the current head movement analysis is whether head movement to F violates locality restrictions on movement. Strictly speaking, the movement does violate the Head Movement Constraint. However, the movement does not raise any problems with respect to locality under the feature-checking approach to locality, as long as the intervening heads do not possess the feature that drives stylistic fronting. (Notice in this respect that elements that can in principle undergo stylistic fronting observe a hierarchy with respect to which of them can undergo stylistic fronting that appears to be structural (see Maling 1980/1990 and Jónsson 1991, among others). It appears that the hierarchy can be readily captured under the feature-checking approach to locality (i.e. under Chomsky's 1995 Attract Closest).) The movement to F is also consistent with Roberts' (1992) and Rivero's (1991) relativized minimality version of the Head Movement Constraint if, for example, F in (5a) is an A'-head and the heads *ekki* crosses are A-heads, certainly plausible assumptions. (For discussion of the stylistic fronting hierarchy, see Jónsson 1991, Sigurðsson 1987, and Holmberg 2000, among others.)

It is worth noting here that stylistic fronting in Old Scandinavian could involve phrasal movement (see Falk 1993 and Delsing 2001), which I take to land in SpecFP. Unambiguous phrasal stylistic fronting is not completely excluded in Icelandic either (see Sigurðsson 1997 and Holmberg 2000). However, it appears to be severely restricted, i.e. it is completely unavailable in most cases, hence I ignore it here. The reader is also referred to Fischer and Alexiadou (2001), who argue that there is crosslinguistic variation concerning whether stylistic fronting involves head or phrasal movement, i.e. F° or SpecFP in our terms.

15. We now need an alternative account of the Irish data Bobaljik (1994, 1995) analyzed by exempting adverbs from interfering with PF merger. (For a potential line on these data, see the discussion concerning (17) above, including fn. 12.) Notice also that, as shown by Izvorski (1993), in contrast to a subject, an adverb can intervene between a wh-phrase and the verb in Bulgarian wh-questions, as demonstrated in (i).

(i)   *Kakvo včera   kupi   Petko?*
      what   yesterday bought Petko
      'What did Petko buy yesterday?'

Given the above discussion, the adverb in (i) should be analyzed as being located above the interrogative complementizer, so that it does not intervene between the complementizer and the verb. It could be located in an additional (lower) SpecCP or C'-adjoined in a more traditional structure, neither of which is the possibility for the adverb in Icelandic (18), since the element preceding the adverb in (18) is adjoined to the head undergoing merger with the verb, and not located in its Spec, as in the Bulgarian construction. Bulgarian (i) could in fact be another example where an adverb occurs higher in the structure than it normally does in order not to interfere with PF merger (see in this respect fn. 12). This could explain the contrast between (i) and English *What yesterday did Peter buy?* (It is worth noting, however, that some speakers of Bulgarian allow adverbs to intervene even in between fronted wh-phrases, which are standardly analyzed as being all located in SpecCP.)

16. Unless otherwise indicated, all the data discussed in this section are from Swedish and taken from Holmberg (1999). (Some of the data are slightly modified.)

    The precise positions of the lexical items in (20), including the shifted object, do not affect the analysis about to be given. That is, the gist of the analysis would not be affected by changing the labels of the phrasal nodes in (20). For ease of exposition, I am following more or less standard assumptions concerning where the relevant elements are located. The negation is standardly assumed to be VP-adjoined and therefore mark the left edge of the VP (see, however, section 2.3.). Most relevant literature assumes that the landing site of object shift is SpecAgroP (SpecvP in Chomsky's 1995 system). See, however, Bošković (1997a: 211–212, in press c), Holmberg and Platzack (1995), and Vikner (1995), among others for problems for the standard assumption.

17. Holmberg presents three other cases which he argues are also covered by his generalization regarding when object shift can take place. As Holmberg himself notes, it is standardly assumed in the literature that the cases in question, which involve a blocking effect of non-verbal elements on object shift, and the blocking effect of verbs on object shift should not be treated in the same way. This seems quite clear for two of the cases Holmberg gives, illustrated in (i). (The third case is discussed in fn. 23.) (ia) illustrates the blocking effect of prepositions on object shift and (ib) the blocking effect of indirect objects on the object shift of direct objects. The latter disappears with A'-movement of the indirect object (ic). The contrast between (ib) and (ic) seems to parallel the contrast between (20b) and (21).

(i)   a.   *Jag talade henne$_i$ inte med t$_i$.*
               I   spoke her   not with

      b.   *Jag gav den$_i$ inte Elsa t$_i$.*
               I   gave it   not Elsa

      c.   *Vem gav du   den$_i$ inte t$_i$?*
              who gave you it   not
              'Who didn't you give it to?'

However, there is an independent account of all the data in (i). Given that object shift involves movement to (or through) a Case-checking position, (ia) must involve movement from a Case-checking to a Case-checking position, which is disallowed. As for (ib), Collins and Thráinsson (1996) present an account of (ib) in terms of a morphological constraint that prevents the Agr which hosts the shifted direct object from having a strong N feature unless the Agr which hosts the shifted indirect object (the latter Agr is higher than the former Agr) has a strong N feature. The constraint in question is violated in (ib), where only the direct object Agr has a strong N feature. (If the indirect object Agr had a strong Agr feature, the indirect object would also have to undergo object shift, which would place it above the direct object.) The problem does not arise in (ic), where the indirect object could be undergoing object shift on its way to SpecCP (see in this respect Bošković 1997b, where it is shown that object wh-NPs *must* pass through SpecAgroP on their way to SpecCP), hence the indirect object Agr could also be strong.

(ii)   *Vem$_j$ gav du t$_j$ den$_i$ inte t$_j$ t$_i$?*

Another way of accounting for the contrast between (ib) and (ic) would be to rule out (ib) by appealing to locality restrictions on movement (more precisely, relativized minimality; see Vikner 1989 for a relativized minimality account of (ib)). Depending on the precise structure of the constructions in question, a controversial issue, (ic) could then plausibly be accounted for by assuming (see Chomsky 1995: 304, 1999) that traces are invisible to Move (more precisely, they do not have a blocking effect on movement) and that locality relevant to movement is computed only at the phase level (see Chomsky 1999: 23).

18. Diesing shows that referential, specific, non-contrastive definite NPs undergo object shift, while non-specific indefinite NPs cannot undergo object shift. Notice also that object shift can affect Binding Conditions (see Holmberg and Platzack 1995).

19. To deal with this issue, Holmberg considerably enriches the standard model. It is worth noting in this respect that Chomsky (1999) presents an alternative to Holmberg's analysis that also faces the problem of phonology-semantics interaction. In particular, Chomsky (1999: 28) proposes a rule that makes an assignment of a particular interpretation sensitive to the notion of *phonological border*. Another problem with Chomsky's analysis is his adoption of the assumption (p. 29) that the feature driving object shift can be present in the structure only if it will eventually have an effect on the interpretation of the sentence (I am ignoring here constructions involving successive cyclic movement through the object shift position), an assumption which results in considerable globality.

20. Holmberg does not leave sufficient room for contextual effects on focus assignment since he assumes that certain categories, for example, main verbs, prepositions, verb particles, in fact all lexical predicate heads, are inherently specified as +[focus]. The assumption seems unmaintainable. For example, neither the verb nor the particle is focused in *Mary turned on the radio* if the sentence

is a response to the following question: *What did Mary turn on*? Holmberg also assumes that certain elements, in particular, adverbs, negation, and in general predicate adjuncts, are not marked for the focus feature. The assumption is also problematic. To illustrate the problem, the adverb is focused, in fact, it is the only focused element in *Mary left yesterday* if the sentence is a response to the following question: *When did Mary leave*?

21. The null hypothesis is that each phrase is "shipped" to the phonology. However, Chomsky (1999, 2000) suggests that certain phrases are privileged in this respect. He develops a rather stipulatory notion of *phase* and suggests that the syntax sends information to the phonology phase-by-phase. The notion of phase is empirically motivated largely on grounds independent of multiple spell-out. In fact, it removes one of the arguments for multiple spell-out Chomsky offers. Chomsky (1995: 385) observes that in the single point of spell-out model, often during the derivation uninterpretable features check and erase pre-spell-out even though they have a phonetic effect. The question arises how to ensure that such features remain in the structure until spell-out. Chomsky (2000: 131) observes that the multiple spell-out hypothesis resolves the question since under this hypothesis, each relevant feature can be sent to the phonological component along with the rest of the structure before being erased; it does not need to "hang around" in the structure upon checking. However, this is still necessary in some cases if spell-out applies only at the phase level. (See Chomsky 1999 for a slightly different take on the issue. The point made here, however, remains.)

    The main empirical motivation for the notion of phase for Chomsky is to make a distinction between CP and IP with respect to several phenomena independent of multiple spell-out, essentially by making IP special in a way that CP is not (see, however, Bošković 2002b, in press a for critical discussion). Franks and Bošković (2001) provide empirical evidence from Bulgarian cliticization that IP is special even with respect to multiple spell-out. In particular, Franks and Bošković provide evidence that the syntax cannot send IPs to the phonology even in the multiple spell-out system. Making IP special in this respect would not affect the current analysis of the saving effect of V-topicalization on object shift in aux+participle constructions. (Notice also that nothing changes with respect to the current account of stylistic fronting regardless of whether FP is considered to be a phase, given that successive cyclic wh-movement would proceed through SpecFP if FP is a phase.)

    It is also worth noting here that I do not adopt Chomsky's (2000) assumption that X must have an uninterpretable feature to be visible for movement. The assumption is obviously very problematic conceptually due to its stipulatory/ arbitrary nature and proliferation of features needed to implement movement under the assumption (in other words, it is a very non-minimalist assumption), and is unnecessary on empirical grounds (see Bošković in press a and Saito 2000). This means that the participle, which eventually moves to SpecCP, does not have to contain any uninterpretable features in the intermediate representation which is sent to the phonology under the current analysis. (Note that in

Chomsky's 1995 system, which does not rely on the visibility approach discussed above, the only feature that the participle would need to have for it to be able to move to SpecCP is the interpretable topic feature.)

22. Bobaljik (1995) suggests that object shift takes place overtly even in (20c). However, a lower copy of the shifted object is pronounced in order not to disturb adjacency between the null head and the participle so that the merger can take place. For Bobaljik (1994), on the other hand, object shift simply does not take place overtly in (20c).

23. The account of the contrast between (20b) and (21) can be extended to the following constructions, discussed in Holmberg (1999), if we assume that (ia) contains a null head, located above the shifted object, with which the particle needs to merge. (ia) can then be accounted for on a par with (20b) and (ib) on a par with (21).

(i)   a. *Dom kastade mej (inte) ut.*
            they threw   me   not   out
            'They didn't throw me out.'

       b. *Ut$_i$ kastade dom mej t$_i$ inte (bara ned   för trappan).*
            out threw   they me   not only down the stairs

However, I emphasize that it is not clear how much importance should be attached to the ungrammaticality of (ia) when examining object shift. As noted by Holmberg (1999), we are dealing here with a quirk of Swedish. Such constructions are acceptable in Danish, Faroese, Icelandic, and Norwegian. (ii) illustrates this for Norwegian.

(ii) *De   kastet meg (ikke) ut.*
       they threw me   not   out

We therefore probably do not want a very deep account of (ia), which the account hinted at above is not. (The account, however, should not be taken too seriously due to its sketchiness. I leave a thorough examination of (i) for future research.) Holmberg's account of (ia), based on the revised Holmberg's generalization (see the discussion above), seems too deep and raises a question as to why (ia) is acceptable in all other Scandinavian languages. (Holmberg in fact leaves (ii), which raises a serious problem for his analysis since it clearly violates his generalization concerning when object shift can take place, unaccounted for.)

It is also worth noting here that, as pointed out by Mamoru Saito (personal communication), under the current analysis we can account for the ungrammaticality of English VP fronting constructions like (iiia), where the main verb and I are adjacent at one point of the derivation, by appealing to the old intuition that only lexical I can license the trace of VP (or, more generally, null VP – see Lasnik 2002, Lobeck 1990, Zagona 1988, among others), which requires lexicalization of I in VP fronting constructions.

(iii) a. *Left, he.*
       b. *Leave, he did.*

24. Notice that Part must merge with the participle of its own clause since the participle from another clause would already be merged with its clause-mate Part. Providing another, more deeply embedded participle for Part in (24) to merge with therefore would not help.

References

Anderson, Stephen
  1993   Wackernagel's revenge: clitics, morphology, and the syntax of sec-
            ond position. *Language* 69: 68–98.
Besten, Hans den, and Gert Webelhuth
  1987   Remnant topicalization and the constituent structure of VP in the
            Germanic SOV languages. *GLOW Newsletter* 18: 15–16.
Bibović, Ljiljana
  1971   Some remarks on the factive and non-factive complements in English
            and Serbo-Croatian. In *The Yugoslav Serbo-Croatian-English Con-
            trastive Project Studies* 3, Rudolf Filipović (ed.), 37–48. Zagreb:
            Institute of Linguistics, University of Zagreb.
Bobaljik, Jonathan
  1994   What does adjacency do? *MIT Working Papers in Linguistics* 22: 1–32.
  1995   Morphosyntax: The syntax of verbal inflection. Ph.D. diss., MIT.
Bobaljik, Jonathan, and Dianne Jonas
  1996   Subject positions and the roles of TP. *Linguistic Inquiry* 27: 195–236.
Bošković, Željko
  1997a   *The syntax of nonfinite complementation: An economy approach*.
            Cambridge, Mass.: MIT Press.
  1997b   On certain violations of the Superiority Condition, AgrO, and econ-
            omy of derivation. *Journal of Linguistics* 33: 227–254.
  1999   On multiple feature-checking: Multiple wh-fronting and multiple head-
            movement. In *Working minimalism*, Samuel D. Epstein and Norbert
            Hornstein (eds.), 159–187. Cambridge, Mass: MIT Press.
  2000   Sometimes in SpecCP, sometimes in situ. In *Step by step: Essays on
            minimalism in honor of Howard Lasnik*, Roger Martin, David
            Michaels, and Juan Uriagereka (eds.), 53–87 Cambridge, Mass.: MIT
            Press.
  2001   *On the nature of the syntax-phonology interface: Cliticization and
            related phenomena.* Amsterdam: Elsevier Science.
  2002a   On multiple wh-fronting. *Linguistic Inquiry* 33: 351–383.
  2002b   A-movement and the EPP. *Syntax* 5: 167–218.
  in press a On left branch extraction. *Proceedings of the 4th European Confer-
            ence on Formal Description of Slavic Languages.*
  in press b On the clitic switch in Greek imperatives. *Proceedings of the Con-
            ference on the Balkan Sprachbund Properties.*
  in press c Be careful where you float your quantifiers. *Natural Language and
            Linguistic Theory.*
Bošković, Željko, and Howard Lasnik
  1999   How strict is the cycle? *Linguistic Inquiry* 30: 691–703.
  in press On the distribution of null complementizers. *Linguistic Inquiry.*
Bresnan, Joan
  1971   Contraction and the transformational cycle. Unpublished ms., MIT.

Browne, Wayles
  1980   Relativna rečenica u hrvatskom ili srpskom jeziku u poredjenju sa engleskom situacijom. [The relative clause in Serbo-Croatian in comparison with English.] Ph.D. diss., University of Zagreb.
Chomsky, Noam
  1957   *Syntactic structures*. The Hague: Mouton.
  1993   A Minimalist Program for Linguistic Theory. In *The view from building 20: Essays in linguistics in honor of Sylvain Bromberger,* Ken Hale and S. Jay Keyser (eds.), 1–52. Cambridge, Mass.: MIT Press.
  1995   Categories and transformations. In: *The Minimalist program*, 219–394*.* Cambridge, Mass.: MIT Press.
  1999   Derivation by phase. *MIT Occasional Papers in Linguistics* 18.
  2000   Minimalist inquiries. In *Step by step: Essays on minimalism in honor of Howard Lasnik,* Roger Martin, David Michaels, and Juan Uriagereka (eds.), 89–155. Cambridge, Mass.: MIT Press.
Cinque, Guglielmo
  1998   *Adverbs and functional heads: A cross-linguistic perspective.* Oxford: Oxford University Press.
Collins, Chris, and Höskuldur Thráinsson
  1996   VP-internal structure and Object Shift in Icelandic. *Linguistic Inquiry* 27, 391–444.
Delsing, Lars-Olof
  2001   Stylistic fronting. Evidence from Old Scandinavian. *Working Papers in Scandinavian Syntax* 68: 147–171.
Diesing, Molly
  1996   Semantic variables and object shift. In *Studies in comparative Germanic syntax*, Höskuldur Thráinsson, Samuel D. Epstein, and Steve Peter (eds.)*, Vol. 2,* 66–84. Dordrecht: Kluwer.
Epstein, Samuel D
  1999   Un-principled syntax and the derivation of syntactic relations. In *Working minimalism,* Samuel D. Epstein and Norbert Hornstein (eds.), 317–345. Cambridge, Mass: MIT Press.
Epstein, Samuel D., Erich Groat, Ruriko Kawashima, and Hisatsugu Kitahara
  1998   *A derivational approach to syntactic relations*. Oxford: Oxford University Press.
Erteschik-Shir, Nomi
  2001   P-syntactic motivation for movement: Imperfect alignment in object shift. *Working Papers in Scandinavian Syntax* 68: 49–73.
Falk, Cecilia
  1993   Non-referential subjects in the history of Swedish. Ph.D. diss., Lund University.
Fischer, Susann, and Artemis Alexiadou
  2001   On stylistic fronting: Germanic vs Romance. *Working Papers in Scandinavian Syntax* 68: 117–145.

Franks, Steven
  1998   Clitics in Slavic. Paper presented at the Comparative Slavic Morpho-
              syntax Workshop, Spencer, Ind.
Franks, Steven, and Željko Bošković
  2001   An argument for multiple spell-out. *Linguistic Inquiry* 32: 174–183.
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,*
              Kenneth Hale and Samuel Jay Keyser (eds.), 111–176. Cambridge,
              Mass.: MIT Press.
Halpern, Aaron Lars
  1995   *On the placement and morphology of clitics*. Stanford, Calif.: CSLI.
Hiraiwa, Ken
  2001   EPP and object shift in Scandinavian: Deriving parametric differences.
              Unpublished ms., MIT.
Holmberg, Anders
  1986   Word order and syntactic features in the Scandinavian languages and
              English. Ph.D. diss., University of Stockholm.
  1999   The true nature of Holmberg's generalization. *Studia Linguistica* 53:
              1–39.
  2000   Scandinavian stylistic fronting. *Linguistic Inquiry* 31: 445–483.
Holmberg, Anders, and Christer Platzack
  1995   *The role of inflection in Scandinavian syntax.* Oxford: Oxford
              University Press.
Huang, C. -T. James
  1993   Reconstruction and the structure of VP: Some theoretical conse-
              quences. *Linguistic Inquiry* 24: 103–138.
Izvorski, Roumyana
  1993   On wh-movement and focus-movement in Bulgarian. Paper presented
              at CONSOLE 2, University of Tübingen.
Jónsson, Jóhannes Gísli
  1991   Stylistic fronting in Icelandic. *Working Papers in Scandinavian Syntax*
              48: 1–43.
Josefsson, Gunlög
  2001   The true nature of Holmberg's generalization revisited-once again.
              Working Papers in Scandinavian Syntax 67: 85–102.
Kayne, Richard
  1994   *The antisymmetry of syntax*. Cambridge, Mass.: MIT Press.
Kraskow, Tina
  1994   Slavic multiple questions: Evidence for wh-movement. Paper pre-
              sented at the 68th Annual Meeting of the Linguistic Society of
              America, Boston, Mass.
Lasnik, Howard
  1995   Verbal morphology: *Syntactic structures* meets the Minimalist
              Program. In *Evolution and revolution in linguistic theory: Essays in*

	honor of Carlos Otero, Héctor Campos and Paula Kempchinsky (eds.), 251–275. Washington, D. C.: Georgetown University Press.
2002	From features to remnants. In *Dimensions of movement*, Artemis Alexiadou, Elena Anagnostopolou, Sjef Barbiers, and Hans-Martin Gärtner (eds), 189–208. Amsterdam/Philadelphia: John Benjamins.
in press	Patterns of verb raising with auxiliary *be. Proceedings of the 1995 UMass Conference on African American English*.

Lebeaux, David
  1988   Language acquisition and the form of the grammar. Ph.D. dissertation, University of Massachusetts, Amherst.

Lobeck, Anne
  1990   Functional heads as proper governors. *Proceedings of NELS* 20, 348–362.

Maling, Joan
  1980   Inversion in embedded clauses in Modern Icelandic. *Islenskt mál* 2: 175–193. Also in *Modern Icelandic Syntax. Syntax and Semantics* 24, Joan Maling and Annie Zaenen (eds.), 71–91. San Diego: Academic Press.

Müller, Gereon
  1998   *Incomplete category fronting: a derivational approach to remnant movement in German*. Dordrecht: Kluwer.

Ochi, Masao
  1999   Multiple spell-out and PF adjacency. *Proceedings of NELS* 29: 293–306.

Oku, Satoshi
  1998   A theory of selection and reconstruction in the minimalist perspective. Ph. D. diss., University of Connecticut, Storrs.

Ottósson, Kjartan
  1989   VP-specifier subjects and the CP/IP distinction in Icelandic and Mainland Scandinavian. *Working Papers in Scandinavian Syntax* 44: 89–100.

Platzack, Christer
  1987   The Scandinavian languages and the null subject parameter. *Natural Language and Linguistic Theory* 5: 377–401.

Poole, Geoffrey
  1992   The Case Filter and stylistic fronting in Icelandic. *Harvard Working Papers in Linguistics* 1: 19–31.
  1996   Optional movement in the Minimalist Program. In *Minimal ideas*, Werner Abraham, Samuel David Epstein, Höskuldur Thráinsson, and C. Jan-Wouter Zwart (eds.), 199–216. Amsterdam: John Benjamins.
  1997   Stylistic fronting in Icelandic: A case study in prosodic X^0 movement. *Newcastle and Durham Working Papers in Linguistics* 4: 249–283.

Rivero, María-Luisa
  1991   Long head movement and negation: Serbo-Croatian vs. Slovak and Czech. *The Linguistic Review* 8: 319–351.

Roberts, Ian
  1992   *Verbs and diachronic syntax.* Dordrecht: Kluwer.
Rögnvaldsson, Eiríkur, and Höskuldur Thráinsson
  1990   On Icelandic word order once more. In *Modern Icelandic Syntax.*
              Syntax and Semantics 24, Joan Maling and Annie Zaenen (eds.),
              3–40. San Diego: Academic Press.
Rudin, Catherine
  1986   *Aspects of Bulgarian syntax: Complementizers and wh-constructions*.
              Columbus, Ohio: Slavica.
Saito, Mamoru
  2000   Scrambling in the Minimalist Program. Unpublished ms., Nanzan
              University.
Santorini, Beatrice
  1994   Some similarities and differences between Icelandic and Yiddish. In
              Verb movement, David Lightfoot and Norbert Hornstein (eds.), 87–
              106. Cambridge: Cambridge University Press.
Sigurðsson, Halldór
  1997   Stylistic fronting. Paper presented at the Second Annual International
              Tromsø Workshop on Linguistics, University of Tromsø.
Stepanov, Arthur
  2001a   Cyclic domains in syntactic theory. Ph.D. diss., University of Con-
              necticut, Storrs.
  2001b   Late adjunction and minimalist phrase structure. *Syntax* 4: 94–125.
Suñer, Margarita
  1994   V-movement and the licensing of argumental wh-phrases in Spanish.
              Natural Language and Linguistic Theory 12: 335–372.
Torrego, Esther
  1984   On inversion in Spanish and some of its effects. *Linguistic Inquiry*
              15: 103–129.
Uriagereka, Juan
  1999   Multiple spell-out. In *Working minimalism*, Samuel D. Epstein and
              Norbert Hornstein (eds.), 251–282. Cambridge, Mass: MIT Press.
Vikner, Sten
  1989   Object shift and double objects in Danish. *Working Papers in Scandi-*
              navian Syntax 44: 141–155.
  1995   *Verb movement and expletive subjects in the Germanic languages*.
              Oxford: Oxford University Press.
Zagona, Karen
  1988   Proper government of antecedentless VP in English and Spanish.
              Natural Language and Linguistic Theory 6: 95–128.