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A-CHAINS AT THE PF-INTERFACE: COPIES AND 'COVERT' MOVEMENT*

ABSTRACT. This paper develops an argument for the copy theory of movement based on consideration of Holmberg's Generalization [HG], a well-documented constraint on object shift in the Germanic languages. A particular formulation of HG is presented, tying it to verb movement, and this is defended against the alternative formulation presented in Holmberg (1999). It is argued that HG is the result of a morphophonological constraint on verb inflection, requiring merger under PF-adjacency, support for which comes from differences between VO and OV languages. The account of HG is related to PF-merger proposals for *do*-support, and a theory of adverb ordering within the Spell Out component is sketched, accounting for the apparent invisibility of adverbs, problematic on earlier approaches. On the standard model, the characterization of HG presented here requires invocation of a PF filter; the copy theory permits an alternative with more local evaluation. By treating the overt/covert distinction as an effect of which copy is pronounced, the copy theory allows satisfaction of the PF adjacency constraint for merger to be a PF matter. Moving to a model in which both LF and PF have the ability to privilege either the higher or lower position in a non-trivial chain predicts the existence of a range of phenomena in which the lower position is privileged by both LF and PF. It is argued that such phenomena are attested, and further implications of the copy theory are explored.

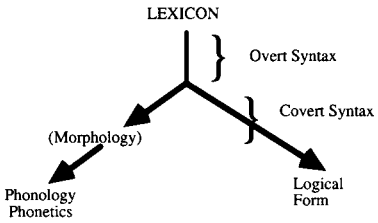
* The core ideas presented here have evolved through a number of incarnations. I am particularly indebted to Susi Wurmbrand for her input at every stage; with respect to the current form of the ideas, for their input, I am grateful to Noam Chomsky, Marcel den Dikken, Danny Fox, Hans-Martin Gärtner, Kyle Johnson, Howard Lasnik, Alec Marantz, David Pesetsky, Roumyana Slabakova, Mikael Vinka, and four anonymous reviewers. Feedback from the following audiences has been useful in shaping the analysis: GLOW 21 (Tilburg 1998), the XI Conference of Nordic and General Linguistics (Reykjavík 1998), talks at the Massachusetts Institute of Technology, McGill University, Universty of Connecticut, University of Ottawa, University of Pennsylvania and Northwestern University, and my Syntax Seminars at McGill University (Fall 1998, 1999). I am especially grateful to Riny Huijbregts and Henk van Riemsdijk for giving me the opportunity to develop this material in a seminar at Katholieke Universiteit Brabant, Tilburg, in the fall of 1999. This work has been funded in part by SSHRC 410-99-0902. All data for which a particular source is not given is from Fleur Veraart (Dutch), Susi Wurmbrand (German), Höskuldur Thráinsson (Icelandic), Anders Berg, Horst Govin, and Axel Wulff (Norwegian), and Matti Eklund, Christer Platzack, and Mikael Vinka (Swedish). These people are in no way responsible for any misinterpretation on my part of the data they so kindly provided, nor should any other error in the paper be attributed to anyone other than me.

Natural Language & Linguistic Theory **20:** 197–267, 2002.

1. INTRODUCTION

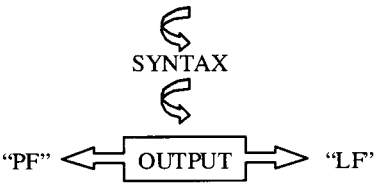
The standard 'inverted Y' model of the grammar (1) put forward in Chomsky and Lasnik (1977) and maintained until quite recently holds that there is an ordering relation between 'overt' and 'covert' movement; specifically, it follows from the architecture of the model that all covert movement follows all overt movement.

(1) *Inverted Y Model:*



If the model is taken to be locally determinable (in the sense that operations in one component cannot 'look ahead' to be decided by factors at a subsequent stage), then it follows that the choice between overt and covert movement of some element must be made in the syntax – prior to the split between PF and LF (S-structure in older terms, Spell-Out in more recent versions). My intention here is to develop an argument that this ordering relationship is empirically inadequate, and that an alternative must be sought. In its place, I will develop a version of the 'copy theory of movement', arguing in particular for what I have referred to elsewhere as 'Single Output Syntax' (Bobaljik 1995b, ch. 6), that is, the hypothesis that the syntax module of the grammar derives a single representation, and it is this single representation that is interpreted by both the conceptual-intentional (LF) and articulatory-perceptual (PF) interfaces. The 'output' of the syntax in this model corresponds essentially to the Lexico-Logical Form of Brody (1995), though with differences in implementation.[1] The model is sketched in (2).

(2)



[1] In the context of this paper, I am not concerned with the derivational vs. representational distinction (Brody argues for the latter), and will continue to couch the discussion in derivational terms.

The theory that I will argue for here makes use of an insight expressed in the proposal (Chomsky 1993, p. 35) that traces are copies of the moved element. The important idea is that chains (the objects of syntactic computation) consist of sequences of copies of a given element, but that at the interfaces (LF and PF) only one position in a given chain is (typically) privileged or 'interpreted' (though see below). Departing from Chomsky, however, I will argue that not only may LF privilege either the higher or the lower copy, but that PF also may choose which copy to privilege (i.e., pronounce).

On this view, then, 'covert' and 'overt' movement are distinguished not by sequential ordering in the derivation, but rather by which copy is pronounced and which copy is not. The theory of covert movement becomes thus a theory of mismatches between the interpretive (LF) and phonological (PF) interfaces regarding the privileging of copies. As schematized in (3), this theory yields a four-way typology of movement operations, where $copy_1$ c-commands $copy_2$.

(3) Privileged copies:

a. $copy_1$ ... $copy_2$ (PF, LF) 'overt movement no reconstruction'	b. $copy_1$ ... $copy_2$ (LF, PF) 'LF movement'
c. $copy_1$ ... $copy_2$ (PF, LF) 'overt movement + reconstruction'	d. $copy_1$ ... $copy_2$ (PF, LF) 'LF movement, +reconstruction'

If the LF and PF interfaces both choose to privilege the higher copy in a given chain, we derive the effect of simple overt movement: the moved element is interpreted in the position in which it is pronounced (3a). 'Reconstruction' (3c) involves the PF-privileging ('pronunciation') of the higher copy, but LF-privileging ('interpretation') of the lower copy, along the lines familiar from Chomsky (1993), Hornstein (1995), and others (see below). The standard case of upwards (leftwards) 'LF-movement' is represented as in (3b): LF interpretation of a copy higher than that pronounced. Finally, the copy + delete theory of movement leads us to expect a fourth possibility (3d): the case in which something moves from the point of view of syntax, creating a sequence of two copies (i.e., a chain), but for which both LF and PF privilege the lower copy. I will refer to this fourth possibility as the 'lower right corner' (LRC) effect, as a convenient mnemonic. In what follows, I will argue that such constructions do exist, that they may be distinguished from non-movement, and that they may even be numerous once we know how to look for them.

This paper seeks to demonstrate one way in which the two models (1) and (2) may be distinguished, and in doing so, presents a potential

argument for the second. The argument runs as follows. The first step (section 3) is to argue for a particular characterization of what has come to be known as Holmberg's Generalization. This generalization concerns object shift (short, leftwards movement of certain classes of object) in the Germanic languages and sets out the environments in which (otherwise obligatory) overt object shift is blocked (and thus presumably covert). I will argue that the correct characterization of these environments is not syntactic in nature, but rather morphophonological – an apparently syntactic operation appears to be blocked just in case it would interfere with a post-syntactic operation (affixation under Morphological or PF-Merger). In other words, I argue that overt object shift is obligatory up to pronounceability. While there is not sufficient space to permit discussion of all competing accounts of Holmberg's Generalization, space will be devoted to discussion of prominent alternative characterizations of the empirical generalization, noting where each of these encounters problems.

The (PF-sensitive) version of Holmberg's Generalization presented here provides the basis for distinguishing between the two grammatical models outlined above. On the standard, inverted Y model in (1) the choice between overt and covert movement must be made prior to the availability of information about morphophonological environment. In order to accommodate the Holmberg's Generalization effects, the inverted Y model must therefore incorporate filters, i.e., global evaluation across modules. The novel T model and copy theory avoid this consequence and can in principle account for the same range of data without such cross-component 'look ahead'. This is because the apparent choice between 'overt' and 'covert' movement (now cast as the pronunciation of a higher or lower copy) is itself a property of the morphophonological component and not of the 'narrow' syntax, hence the feeding relationship may be reflected in the inherent sequence of operations in the derivation. In this way, then, to the extent that a model without intra-component filters is to be preferred over one which necessarily invokes filters, the characterization of Holmberg's Generalization argued for here constitutes a reason to prefer the novel T model (and the copy theory of movement) over the more standard inverted Y model.

Before proceeding to the main thrust of the article, section 2 fleshes out the proposal somewhat, situating it in a broader theoretical context. Section 5 briefly contrasts the present theoretical proposal with some closely related alternatives, in particular showing where it does (and does not) differ from Chomsky's (1993) version of the copy theory, and its later incarnations as Move-F (Chomsky 1995) and Agree (Chomsky 2000). Section 6 concludes the paper and offers some speculations for further research.

Throughout, the discussion will be limited to A-chains, and, as the title indicates, to the PF-interface properties of these chains. Arguments for an extension of this model to A′-chains (in particular, QR and adjunction) are given in Fox and Nissenbaum (1999) and Fox (to appear). For a more thorough consideration of the semantic-interpretive properties of A-chains in this context, see the references in section 2.

2. THEORETICAL PRELIMINARIES

Chomsky (1993, p. 35) (re)introduced the copy theory of movement to offer an account of certain reconstruction and anti-reconstruction effects, suggesting that the semantic component may choose to interpret – for the purposes of scope and binding – either copy of a moved element. The A-reconstruction example in (4) serves to illustrate the mechanism.[2]

(4) Someone from New York is likely to win the lottery.
(Ambiguous scope), possible LFs:

a. [Someone from NY] is likely [~~Someone from NY~~] to win the lottery.
someone ≫ likely

b. [~~Someone from NY~~] is likely [Someone from NY] to win the lottery.
likely ≫ someone
Context 1: There is a person, who (whether or not we know his/her identity) is from New York, and who has purchased more than 50% of the lottery tickets.
Context 2: More than half of the lottery tickets were sold to people from New York, though no single person purchased more than 5% of the tickets.

As shown, the sentence has (at least) two interpretations. On one reading (the 'wide scope' reading of *someone* over *likely*) the DP *someone from New York* refers to a person who for whatever reason is likely to win the lottery, and who happens to be from New York (e.g., context 1). On the second reading (the 'reconstructed' or 'narrow scope' reading),

[2] Notwithstanding a certain controversy in the recent literature about A-reconstruction. See Lebeaux (1995), Hornstein (1995), refined and extended in Romero (1997), Fox (2000), Sauerland (1998), Wurmbrand and Bobaljik (1999), for arguments that the controversy is ill-founded and that syntactic A-reconstruction clearly exists (*contra*, e.g., Lasnik 1999).

the sentence merely asserts the likelihood of the (as yet undetermined) winner of the lottery being from New York. Importantly, the reconstructed reading can be true even in a context in which the surface scope is false (as in context 2), and hence it cannot be reduced to a special case of the surface scope. This ambiguity has been shown to be a matter of scope (see especially Fox 2000), and we therefore posit two corresponding LF representations as in (a) and (b), each with two copies of the DP, but with the copy that is not interpreted indicated by strikethrough.

Considerations of space do not permit a full treatment of scope and A-reconstruction here, and the reader is referred to Fox (2000), Wurmbrand and Bobaljik (1999), and references therein. Two points are worth noting here. First, throughout this article I make the simplifying assumption (*contra* Brody 1995; Lechner 1998) that LF is 'coherent' in the sense of Lebeaux (1995), Hornstein (1995), Romero (1997), Fox (1999), and others. These authors have argued that a given element may not take scope from one position yet be interpreted for the purposes of Binding Conditions in another position: that is, "at the C-I interface [LF] a ... chain has [exactly] one visible link" (Hornstein 1995, p. 154). Second, LF coherence (and the term 'interpreted') may be qualified by the clause 'for the purposes of scope and binding' – an important qualification which is intended to hold throughout this paper. On a configurational approach to thematic structure, such as that maintained in Chomsky's work, the base (thematic) position of an argument must be accessible to the interpretive component. If interpretation is exclusively the purview of LF (i.e., there is no D-structure), then the lower copy must be present at LF in some sense, even if scope or binding phenomena favour the higher copy. Henceforth, then, strikethrough at LF, at least for a lower copy, does not mean deletion at LF, but should be taken to mean deletion up to (thematic) interpretability, perhaps conversion to trace in the sense of Fox (2000).[3]

Consider now the PF-interface 'branch' of the derivation. If LF may privilege either one of the two members of a given chain, it is legitimate to ask how PF deals with chains. Chomsky (1993) avoids the question, assuming (p. 35) without argument that PF always targets (i.e., pronounces) the highest copy in a non-trivial chain, deleting the lower copy.[4] A number of authors (initially Brody 1995; subsequently Bobaljik 1994a, 1995b; Pe-

[3] Though Hornstein (1998), Lasnik (1995), and Bošković and Takahashi (1998), among others, sidestep this issue by treating θ-roles as features permitting in principle a fully coherent LF.

[4] Chomsky (1995) maintains the assumption (at least until p. 261) that the lower copy always deletes, seeming to imply (p. 253) that this follows from the notion of a chain as constituted of identical elements.

setsky 1998; Groat and O'Neil 1996) questioned this position immediately, noting that the assumption that the phonology, like the interpretive component, could privilege either the higher or lower position would provide a straightforward treatment of covert raising (canonical instances of LF-movement). Pronunciation of the higher copy (and PF-deletion of the lower one) would capture straightforward overt (upwards) movement, while pronunciation of the lower copy (and PF-deletion of the higher one) would correspond to covert raising. Consider in this light the pair of representations of a raising construction in (5), with strikethrough here indicating PF-deletion. Pronunciation of the higher copy yields overt movement (6a), while pronunciation of the copy in the lower position corresponds to the sentence in (6b), an expletive-insertion construction taken to involve covert raising (as diagnosed by the plural agreement on *seem*).[5]

(5)a. [$_{DP}$ frogs] seem to be [$_{DP}$ ~~frogs~~] sitting in the bog.

b. [$_{DP}$ ~~frogs~~] seem to be [$_{DP}$ frogs] sitting in the bog.

(6)a. Frogs seem to be sitting in the bog.

b. There seem to be frogs sitting in the bog.

There are three important respects in which this copy + delete alternative differs from the standard model in (1) and from Chomsky's version of the copy theory. The first is that the copy + delete theory maintains that all movement takes place in a single syntactic component. On this view, then, there should be no syntactic differences between overt and covert movement. I will not discuss this point here; all of the authors above have addressed the point with particular reference to subjacency, once believed to hold of overt movement but not of covert movement. The second and third differences between the two theories are the backdrop for the remainder of this paper.

The copy + delete theory of movement differs from Chomsky 's approaches (including the 1995 and 2000 alternatives discussed in section 5 below) in taking the choice of which copy to pronounce to be a PF matter and not an issue of the syntax, narrowly construed. This theory would therefore find support over Chomsky's approach if it could be shown that the choice crucially involves PF-considerations. This is the core of the argument in section 3. In a particular case in which an expected 'overt'

[5] Note that on this analysis, *there*-insertion is treated as a PF-phenomenon, i.e., a phonological requirement that there be an element in subject position. This is taken up again in section 4.1, below.

movement operation fails to apply, the determining factor is shown to be a PF-interface (i.e., morphophonological) one, having to do with PF-merger under adjacency. Weaker support comes from the typology in (3), inasmuch as it is the assumptions that constitute the copy + delete theory – i.e., that neither LF nor PF is required to privilege the topmost copy in a chain – that yield this typology. Evidence of the lower right corner effects (3d) would therefore support the copy + delete theory over the standard theory, at least to the degree that they fit naturally into the framework advanced here, and much more awkwardly into the standard view. It is argued in section 4 that expletive constructions exemplify exactly this predicted pattern.[6]

Though I will cast the discussion throughout this paper in terms of 'copies', no significant ontological commitment should be read into this choice of notation. The leading idea is this: the syntax, perhaps by means of a sequential derivation, defines a structural representation consisting of *chains*. A chain is the set of positions occupied by a given syntactic entity (term, constituent, etc.) during the course of the derivation (cf. Chomsky 1995, pp. 251f).[7] For example, the chain in (5) has two members, one being Spec,IP and the other Spec,VP. In the general case, a given chain finds phonetic instantiation at only one of its positions. Once again, what is crucial here is not the notation used to express this (copy-deletion, Move-F plus pied-piping, 'late' insertion of phonological content into one position of the chain, or the privileging of one link of a multi-dominance structure), but rather the *level* at which the decision is made. For the theory advanced here, while syntax defines the chain, it is the PF- interface and not the syntax *per se* that determines where the chain is pronounced.

3. HOLMBERG'S GENERALIZATION: A MORPHOPHONOLOGICAL PHENOMENON

Since entering the limelight in Chomsky (1993, p. 18), a great deal of attention has been paid to a peculiar restriction on object shift in the

[6] On our current understanding, this cannot be developed into a conclusive argument, as Chomsky's theory does not necessarily exclude 'covert movement that subsequently reconstructs' (see also Hornstein 1999). This is particularly true of Chomsky's (2000) Agree theory, which is closer to the theory outlined in Bobaljik (1995b) (and here), though differences still remain, as noted below. See Wurmbrand (2001a) for a discussion of A-reconstruction facts in German that may tease apart the two approaches.

[7] This is meant to finesse certain questions having to do with 'chain linking' as, for example, might be relevant when a [+*wh*] DP raises first via A-movement (e.g., for case/agreement) and then further via A′-movement, (e.g., as in the case of a wh-word). As far as I can see, there are various options here, and the choice is not particularly relevant.

Scandinavian languages, namely, that it is restricted to environments in which the main verb has raised overtly out of the VP. This has come to be known as 'Holmberg's Generalization' [HG] after Holmberg (1986). In section 3.1, I present a brief summary of the empirical content of the generalization as it is commonly interpreted in the recent literature. Sections 3.2–3.6 are devoted to developing and motivating an account of this effect. In places, it has been necessary to diverge from the main thread in order to establish various ingredients of the analysis or to demonstrate that certain alternatives are inadequate in various respects. Section 3.2 develops the theoretical machinery to be used, in particular the theory of verbal inflection as PF/morphological-merger (effectively, the 'Affix-Hopping' analysis of Chomsky 1957) and the account of *do*-support that accompanies it. The major drawback of this approach to inflection has been the apparent invisibility of adverbs at the level at which this merger obtains. I address this objection in section 3.3, providing an account of the linearization component of the Spell-Out procedure which exploits the segment-category distinction to show why adjuncts only appear to be invisible to PF-merger, but in actual fact are afforded a limited degree of flexibility during linearization which allows them, for example, to be pronounced in a position to the left of Infl, even when they are adjoined to VP.

In section 3.4, I present the core of the analysis, showing how the assumptions which drive the analysis of *do*-support extend straightforwardly to the HG phenomenon. While *do*-insertion is a (PF) response to a stranded Infl node, the Scandinavian languages prohibit overt object shift in exactly those environments where shifting the object would block inflection of the verb by PF-merger. The structure needed to maintain this account for compound tenses is defended and an alternative proposal involving more structure (Zwart 1994) is shown to make incorrect predictions. One of the major results of the analysis put forth here is that it makes the clear – and correct – prediction that no HG-like effects will be observed in the head-final Germanic languages (section 3.5). Having motivated and defended the analysis, section 3.6 considers an empirical challenge to this account put forth in Holmberg (1999). Holmberg argues that HG as stated in terms of verb movement is too restrictive and makes the initially appealing suggestion that the effects are part of a broader generalization which do not fall under the type of account envisioned here. Nevertheless, I contend that the extension is unwarranted and that the additional phenomena considered by Holmberg are more properly subsumed under the theory of locality in A-movement and are not directly related to HG. Section 3.7 provides

an interim summary and allows us to move on to an investigation of the expected Lower Right Corner effects in section 4.

3.1. *Holmberg's Generalization – An Overview*

All Germanic languages except English display verb-second (V2) characteristics in matrix clauses and thus a simple, finite verb raises to some high position (often taken to be C°), immediately preceded by a single phrase. In such clauses, a 'weak' pronominal object undergoes 'object shift',[8] surfacing to the left of elements taken to mark the left edge of the VP such as certain adverbs, negation and floating quantifiers, as illustrated in (7), representative of all the Scandinavian languages. This shift of weak pronouns is reported to be obligatory in this environment 'except in some dialects of Swedish' (Thráinsson 1997, p. 35, see also Hellan and Platzack 1995).[9]

(7)a. Igår läste de **den**$_i$ [$_{VP}$ inte t_i]
yesterday read they it not
They didn't read it yesterday. (Swedish)[10]

[8] Object shift is here used in the sense used in, e.g., Bobaljik (1995b), Bobaljik and Jonas (1996), that is, referring to local, leftwards, A-movement of a pronoun or DP object. In those works, the landing site of this movement is taken to be the specifier of AgrO-P, while in Chomsky (1995, p. 353), the landing site is one of multiple specifiers of vP; other proposals exist. So long as the movement is not taken to be adjunction, nothing in the present paper that I can see hinges on this particular issue and I will continue to use Spec,AgrO-P as the landing site more for the sake of familiarity than for any theoretical claim (though strictly speaking this is incompatible with the position taken in Bobaljik and Thráinsson 1998). Note that object shift in this sense is strongly connected to interpretive considerations; see Bobaljik (1995a, ch. 3), Diesing (1996, 1997), and references therein. This distinguishes it from whatever shorter displacements may or may not obtain in English (as proposed, e.g., by Johnson 1991 and others). Reconciling these approaches is not a task I will undertake here. Finally, it is important to note that I offer no new insights in this paper as to why some languages have a syntactic requirement that certain objects leave the VP. For some discussion and proposals, see the references cited above in this footnote.

[9] Care must be taken to use as diagnostics only those elements (such as certain adverbs) which cannot occur at the right edge of VP as well. See Bobaljik and Jonas (1995) for discussion and section 3.4, below. Note also that it may be that subject-initial main clauses are not V2 constructions (Travis 1984; Zwart 1993), though this has no obvious bearing on the current discussion. Where plausibly relevant, this complication has been avoided by giving examples with a fronted non-argument topic, or, as is now standard for German and Dutch, by giving only embedded, non-V2 clauses, to control for this effect. For a different characterization of Norwegian data, including the claim that full DP objects can shift across adverbs so long as they do not end up immediately preceding negation, see Nilsen (1997).

[10] For orthographic matters in Swedish, I have followed conventions used by the sources, with no attempt at regularization.

b. Hann las {**þær**} ekki {*__þær__}
he read them not them
He didn't read them. (Icelandic, Diesing 1996, 67)

In Icelandic a full DP object may also undergo object shift, as seen in (8).

(8) Á barnum drakk stúdentinn **bjórinn**$_i$ [$_{VP}$ stundum t_i]
in bar.the drank student.the beer.the sometimes
In the bar, the student sometimes drank the beer. (Icelandic)

Object shift of full DPs in Icelandic was initially reported to be optional on the basis of pairs like (9a) (e.g., Holmberg 1986, p. 167) but subsequent work has shown that object shift correlates with interpretation, in that objects introducing new information (including focused NPs and existential indefinites) may not shift, while objects reflecting old information may, and in many cases must (see Bobaljik 1995b; Diesing 1996, 1997).

(9)a. Jón keypti {**bókina**} ekki {**bókina**}
J. bought book.the not book.the
John didn't buy the book. (Icelandic, Diesing 1996, p. 67)

b. Í fyrra máluðu stúdentarnir {**hús-ið**/*__hús__}$_i$ [$_{VP}$ ekki t_i]
*last year painted the.students house-the/*house(s) not*
Last year the students didn't paint the house. (Icelandic)

There are, however, restrictions on the syntactic environments in which object shift may occur. Striking among these is the fact, first noted by Holmberg (1986), that object shift is impossible when the main (i.e., thematic) verb has not left the VP, an observation that has come to be known as *Holmberg's Generalization*. Thus, in embedded clauses in Swedish (and Norwegian and Danish), the finite verb remains VP-internal (see Vikner 1995); for example, the inflected verb (main or auxiliary) obligatorily follows the same class of elements used to diagnose the left edge of the VP for purposes of object shift (in this case, the adverb *verkligen* 'really').[11]

(10)a. Jag tvivlar på [$_{CP}$ att [$_{IP}$ han [$_{VP}$ verkligen läste boken]]]
I doubt on that he really read book-the
I doubt that he really read the book.

[11] The complex verb *tvivla på* 'doubt' is used to avoid the complication of 'bridge verbs' which allow root syntax (including V2) in their complements. See Iatridou and Kroch (1992), among others, for discussion. An example illustrating this point with an auxiliary verb is given in fn. 29 below.

b. *Jag tvivlar på [$_{CP}$ att [$_{IP}$ han läste [$_{VP}$ verkligen boken]]]
I doubt on that he read really book-the
I doubt that he really read the book. (Swedish)

The embedded complements of non-bridge verbs in these languages are thus one environment in which the effects of Holmberg's Generalization emerge; object shift – essentially obligatory in (7) – is prohibited in (11b).[12]

(11)a. Det är troligt [att de [$_{VP}$ läste **den**]]

b. *Det är troligt [att de **den**$_i$ [$_{VP}$ läste t_i]]
it is probable that they it read it
It is probable that they read it. (Swedish)

Another set of environments in which Holmberg's Generalization applies to block object shift is compound tenses and modal constructions. In main clauses, only the highest verbal element is inflected and raises to satisfy the V2 condition. The main verb (participle or infinitive) obligatorily remains in the VP in Mainland Scandinavian and Icelandic alike. In these constructions, too, object shift is blocked, as illustrated for Swedish and Icelandic compound tenses in (12) and for Icelandic modal constructions in (13).[13]

(12)a. Johann har [$_{VP}$ sett **den**]

b. *Johann har **den**$_i$ [$_{VP}$ sett t_i]
J. has it seen it
Johann has seen it. (Swedish)

d. Hann hefur [$_{VP}$ lesið **bókina**]

d. *Hann hefur **bókina**$_i$ [$_{VP}$ lesið t_i]
He has book.the read book.the
He has read the book. (Icelandic)

[12] No consideration is given in this paper to negative quantified objects, which show a substantially different behaviour, as noted originally by Koch Christensen (1991) and Rögnvaldsson (1987). See Jónsson (1996), Svenonius (2000) for discussion.

[13] Object shift is, predictably, possible in control infinitivals in Icelandic (Thráinsson 1997, p. 34). In these infinitives, the verb raises overtly as noted by a number of authors; see especially Sigurðsson (1989), Thráinsson (1993), and Johnson and Vikner (1994) for a comparison to other Scandinavian languages.

(13) *Risarnir ættu [að **ríkisstjórnirnar**$_i$ [$_{VP}$ éta t_i]]
giants.the ought to governments.the eat
The giants ought to eat the governments.
(Icelandic, Thráinsson 1993, p. 204)

This, then, is the crux of HG. When the main verb has not raised out of the VP, the object may not shift across it. This is true even though for many speakers failure to shift an appropriate object when the verb has raised yields a degraded or unacceptable sentence.

Though the characterization of the generalization as tying object shift to verb movement (attributed to Holmberg 1986) is what has gained currency in the literature, this is not exactly what Holmberg (1986, cf. Holmberg 1999) proposed. Holmberg (1986, pp. 165f) saw the restriction regarding verb movement as part of a larger generalization (his 'phonetic adjacency condition'), under which the object may not shift across any material other than adverbs and floating quantifiers (see also Holmberg 1999, p. 2). In addition to covering the cases where the object shifts across the main verb ((11b), (12b,d) and (13)), the generalization given by Holmberg extends to cover the (apparent) ungrammaticality of object shift across particles and indirect objects, in Swedish, as in (14) (though note that these are grammatical in Norwegian and Danish).

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

b. *Jag gav **den**$_i$ inte Elsa t_i
I gave it not Elsa.
I didn't give it to Elsa.
([Standard] Swedish, Holmberg 1999, p. 2)

I will argue below (section 3.6) that limiting the generalization to the verb movement cases is correct, and that the ungrammatical examples in (14) have an independent explanation, falling under a broader generalization having to do with locality of A-movement, a generalization to which Holmberg's (1999) account cannot be extended. Anticipating then, somewhat, I will continue to use 'HG' to refer to the generalization that the object cannot shift if the verb has not raised, taking the goal of the theory to be to explain this effect, and, strikingly, the lack of analogous effects in the head-final (OV) Germanic languages.

The account of HG that I will offer here relates it directly to the well-studied phenomenon of *do*-support in English. I will argue below that an otherwise-shiftable object is prohibited from surfacing in the shifted position, just in case it would disrupt adjacency between the inflectional head (Infl) and the verb. This arises only in those environments where the verb does not raise, and, importantly, only in the VO languages. This is of course the same environment in which *do*-insertion is triggered in English: just in case structural material intervenes between the inflectional head (Infl) and the verb (in the VP). For this reason, I will quite briefly restate the analysis of *do*-insertion that underlies this account, prior to considering its extension to object shift phenomena.

3.2. *Do-Support*

Recent work by many authors (see Travis 1984, pp. 140f; Halle and Marantz 1993; Bobaljik 1994b; Lasnik 1995b) has argued for a return to something like Chomsky's (1957) Affix-Hopping analysis of English inflection. On this theory, the finite verb, surfacing in the VP, comes together with the inflectional features (in Infl) via PF-/morphological merger and not by syntactic (overt or covert) raising of the verb, as illustrated in (15) with the joined circles indicating Merger in a post-syntactic component (cf. Marantz 1984; Embick and Noyer 1999; see section 3.3 for a more explicit characterization of the mapping from syntax to phonology).

(15)a. [$_{IP}$ Sam [$_{I^\circ}$ -s] [$_{VP}$ eat- Spam]]
b. O - - - - - - - O ← Morphological/PF-Merger
c. Sam eats Spam.

PF-merger is blocked when structural material disrupts the *adjacency* between the stem and affix and *do* must be inserted (at PF) to support the stranded affix, yielding the familiar contrast between (16b) and (16c):

(16)a. Sam [$_{VP}$ eats green eggs and ham.]
b. *Sam not [$_{VP}$ eats green eggs and ham.]
c. Sam **does** not [$_{VP}$ eat green eggs and ham.]

Negation in English by hypothesis disrupts the adjacency between the verb stem (in the VP) and the inflectional affix in Infl blocking PF-merger and

triggering the insertion of pleonastic *do* to support the otherwise stranded inflectional affix.[14] This is roughly schematized in (17).

(17)a. [$_{IP}$ Sam [$_{I°}$ -s] not [$_{VP}$ eat- ham]]

b. O- - - ∗ - - - - - - O ← Adjacency Disrupted

c. ∅→ *do* ← *do*-insertion

d. Sam does not eat ham.

This account correctly predicts all environments of *do*-support in English, including especially the contrast between subject-*wh*-questions (which do not require *do*-support) and all other questions (which do). As long as a lexical subject occupies Spec,IP, it will intervene to block the adjacency between the inflectional affix in C° and the verb stem in V° when *wh*-movement to Spec,CP has triggered 'inversion' of Infl to COMP (as in (18)). When it is the subject itself which is being questioned, however, as in (19), there is no longer overt lexical material intervening, only the (phonologically null) trace of the subject, and Infl, even in C°, is adjacent to the verb stem.

(18)a. [$_{CP}$ When [$_{C°}$ [$_{I°}$ -s]] [$_{IP}$ Sam [$_{I°}$ *t*] [$_{VP}$ eat- ham]]]

b. O - - - - - ∗ - - - - - - - - - - O → Adjacency Disrupted

c. When does Sam eat ham?

(19)a. [$_{CP}$ Who [$_{C°}$ [$_{I°}$ -s]] [$_{IP}$ t_{SUBJ} [$_{I°}$ *t*] [$_{VP}$ eat- ham]]]

b. O - - - - - - - - - - - - - - - - - - O → Merger Successful

c. Who eats ham?

This theory also correctly predicts the distribution of *do* in tag-questions and VP-ellipsis, a stumbling block for some syntactic theories of *do*-support. In particular, if VP-ellipsis involves 'normal' syntax but with subsequent deletion (at PF) of a VP under parallelism with some antecedent VP (cf. Tancredi 1992; Chomsky and Lasnik 1993) then the obligatoriness of *do* in VP-ellipsis contexts is unexpected on a syntactic account, such as that of Chomsky (1991), but predicted on the present

[14] Questions arise if IP and VP are decomposed into further projections as seems well-motivated (though see Bobaljik and Thráinsson (1998) for arguments against splitting IP in English). However, so long as such decomposition does not leave any structural, lexical material between Infl and the position of the verb, the analysis here remains unaffected. I will continue to use IP and VP except where the issue becomes directly relevant.

account. To see this, consider the syntactic representation of a sentence with two identical VPs, as in (20a), the input to the PF-deletion process.

(20)a. [$_{IP}$ Sam [$_{VP}$ left on Thursday]] even though [$_{IP}$ Pat [VP left on Thursday] too].

b. Sam left on Thursday even though Pat did too.

c. *Sam left on Thursday even though Pat [e] too.

As (20b–c) demonstrate, *do*-support is obligatory in this context even though the two conjuncts are in all relevant respects identical in the syntax and at LF. The difference which triggers *do*-support in the second conjunct (the deletion of the VP) does not emerge until PF under a PF-deletion account of ellipsis. To the extent that the PF-deletion account of ellipsis is the correct one, this provides an additional argument for the PF-nature of *do*-support.

The major challenge for the PF-merger theory of inflection and *do*-support, as has often been noted, is the fact that adverbial elements appear to be invisible for the computation of adjacency, even though they are undeniably present in the syntax. For example, the VP-adjoined adverb *never* is syntactically active, entering into scope relations and licensing negative polarity items that it c-commands (21c). Nevertheless, it appears to permit merger across it, inasmuch as it does not trigger *do*-support (21b).

(21)a. [$_{IP}$ Sam [$_{I^\circ}$ -s] never [$_{VP}$ eat- anything]].

b. O - - - - - - - - - - - O ← Morphological Merger

c. Sam never eats anything.

The apparent invisibility of adverbs is an important fact which serves to unite the analysis of *do*-support with the analysis of HG offered immediately below and with the analysis of the surface position of the complementizer in Modern Irish as put forth by McCloskey (1996) (as reinterpreted in Bobaljik 1995b, ch. 2). There are various ways to approach the issue of why adverbs (which are, after all, pronounced) seem to be invisible to a PF-process operating (by hypothesis) under adjacency. In the next section, I sketch one approach which exploits the odd nature of adjunction in syntactic representations, specifically, the category-segment distinction. I show that, by making relatively common assumptions about the nature of Spell-Out explicit in a particular way, two things fall out. First, the adverb question is resolved: the system permits adjoined elements in effect (though not literally) to be displaced out of the way of the

merger operation during the procedure that linearizes syntactic structures. Second, as a by-product, the system provides an answer to the question of why the merger operation invoked here always appears to be a lowering operation; for example, why the merger of Infl + V is apparently pronounced in the position of the verb and not that of Infl (Bobaljik 1995b, p. 73). This turns out to be a consequence of the architecture of the system.

3.3. *Excursus: The Place of Adverbs in a Theory of Linearization*[15]

Central to the analysis advocated here is the assumption that syntactic representations contain only hierarchical information (command and dominance relations). That is, each node in the syntactic tree ("the computation from Numeration → LF" in the terminology of Chomsky 1995) is a pair of categories [X,Y] with precedence not determined. Spell-Out, then, must include a process that assigns information about precedence relations to the elements in the output of the syntax. There are many ways to achieve this, with various consequences. One simple way to conceive of the precedence assignment process is as a procedure that maps each node to an ordered pair: [X → Y] or [Y → X] (where the arrow is to be read as 'precedes'). To take a toy example, the embedded clause described in (22) (irrelevant details omitted), could correspond to the English embedded clause in (23a) via the precedence assignments in (23b) or to the German embedded clause in (24a) via the precedence assignments in (24b).

(22) $[_{CP}$ C, IP]
$[_{IP}$ DP_1, I′]
$[_{I'}$ Infl, VP]
$[_{VP}$ V, DP_2]

[15] This section departs from proposals in earlier, related work such as Bobaljik (1995b). There, I declared adverbs to be invisible for the merger process and pursued various accounts of why this might be the case. Here, essentially following a suggestion by Howard Lasnik (personal communication 1995), I am pursuing an approach in which adverbs are not invisible, but only appear to be so in that they can be pronounced in a position slightly removed from where one might have expected them. This section builds especially on ideas suggested to me by Danny Fox (personal communication 2001) taken from his unpublished work in progress regarding an alternative approach to Holmberg's Generalization. Neither of these people should be held responsible for ways in which I have twisted their ideas that they might not necessarily endorse. For some related alternatives, see Bobaljik (1999a) and Ochi (1999).

(23)a. … that Sam will eat Spam.

b. $[_{CP}\ C \rightarrow IP]$
$[_{IP}\ DP_1 \rightarrow I']$
$[_{I'}\ Infl \rightarrow VP]$
$[_{VP}\ V \rightarrow DP_2]$

(24)a. … dass Rex Wurstsemmeln essen wird.
… that Rex sausage.buns eat will
… that Rex will eat sausage buns.

b. $[_{CP}\ C \rightarrow IP]$
$[_{IP}\ DP_1 \rightarrow I']$
$[_{I'}\ VP \rightarrow Infl]$
$[_{VP}\ DP_2 \rightarrow V]$

To make the system maximally explicit (more so than is strictly necessary here), I assume that the Spell Out process includes the following four operations:[16]

(25)a. Assignment of precedence conditions to syntactic nodes

b. Chain reduction (= trace or copy deletion)

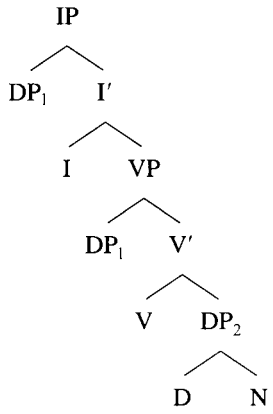
c. Conversion to linear string of X°s

d. Vocabulary insertion (see Halle 1997)

The derivation in (26)–(28) is then more complete. Assuming that the subject raises from a VP-internal position, (26b) is the syntactic structure of a simple English clause. This corresponds to the tree in (26a), included for ease of exposition (though it must be kept in mind that the tree reflects a linear order that is not yet determined by/in the syntax).

[16] See Nunes (1995, 1999) for concrete proposals regarding operation d. I assume that components b. and c. are both parts of a single mapping operation, which we could call *linearize*, cf. Noyer (1997). They are kept apart here for the sake of clarity.

(26)a.



b. $[_{IP}\ DP_1, I']$
$[_{I'}\ I, VP]$
$[_{VP}\ DP_1, V']$
$[_{V'}\ V, DP_2]$
$[_{DP2}\ D, N]$

The precedence assignment procedure (with English headedness options) applied to these nodes yields (27a). *Chain Reduction* applies, deleting one copy of DP_1 from the list of precedence relations (and eliminating the conditions that would force DP_1 to precede itself). This yields (27b).

(27)a. Precedence	b. after Chain Reduction
i. $[_{IP}\ DP_1 \rightarrow I']$	i. $[_{IP}\ DP_1 \rightarrow I']$
ii. $[_{I'}\ I \rightarrow VP]$	ii. $[_{I'}\ I \rightarrow VP]$
iii. $[_{VP}\ DP_1 \rightarrow V']$	iii. $[_{VP}\ V']$
iv. $[_{V'}\ V \rightarrow DP_2]$	iv. $[_{V'}\ V \rightarrow DP_2]$
v. $[_{DP2}\ D \rightarrow N]$	v. $[_{DP2}\ D \rightarrow N]$

The precedence conditions in (27b) are satisfied by a unique linear ordering of the terminal (X°) nodes, that in (28a). After vocabulary insertion (which, following Halle and Marantz 1993 and other realizational theories of morphology, I take to occur late in the derivation from syntax to phonology), this string may be pronounced, for example, as in (28b). Note that Infl and V are adjacent (29a) = (28a) and can thus be merged, yielding (29b) which is in turn instantiated via vocabulary insertion by the string in (29c).[17]

[17] Note that this differs from *Morphological Merger* as developed in Marantz (1984) and elsewhere, an operation that requires structural (i.e., syntactic) adjacency. Note also that there is no reason to think that merger between Infl and V in (29b) should lead to a prefixal Infl. Linearization is assumed to order X° nodes relative to one another. Order internal to X° nodes (e.g., whether a given feature is realized as a prefix or suffix) is a part of the vocabulary insertion component. This is motivated by languages in which a single syntactic terminal node can be realised variously as a prefix or suffix in the absence of any syntactic movement. See, for example, the analysis of the Arabic prefix-suffix interactions in Noyer (1997). For explicit, step-by-step discussion of the derivation of English inflection in the post-syntactic morphological component, including the output of merger, see Halle and Marantz (1993), especially pp. 132–138.

(28)a. D I V D N

b. Sam will eat the meat

(29)a. D I V D N *linearization* = (28a)

b. D [I+V] D N *merger/rebracketing*

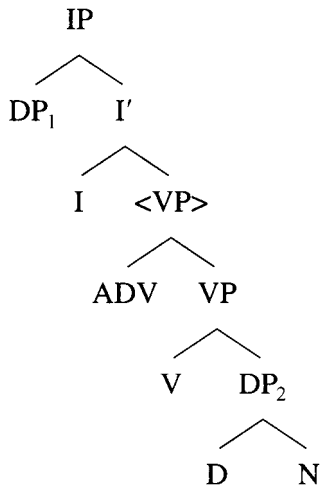
c. Sam likes the meat. *vocabulary insertion*

In line with other recent treatments of linearity conditions (e.g., Kayne 1994) it is assumed that precedence does not (necessarily) mean immediate precedence. Note, though, that the procedure sketched here differs in other respects from the Linear Correspondence Axiom of Kayne (1994). In addition to the basic difference that precedence is here not taken to be a property of the syntax *per se*, it should be clear that I am espousing a more or less traditional view of headedness parameters, for instance, that the German V′ is head-final while the English V′ is head-initial; this is the information encoded in the precedence rules. (This is a key point in section 3.5 below where we find that Holmberg's Generalization holds only of head-initial languages.) Note that precedence conditions here are stated only over pairs of sister nodes; the precedence relations among the daughters (such as the fact that the complementizers precede the verbs in (23) and (24)) are determined only indirectly, by transitivity (e.g., C precedes IP, and IP dominates the VP which in turn dominates the verb). One effect of this is that the precedence conditions derived from the syntactic representation are not (necessarily) total with respect to the terminal nodes. Another effect is that adjunction plays out differently in terms of linear order in this system based on sisterhood and dominance than it does on one based on c-command, as we will see below.

Consider now how adjoined elements are to be incorporated into this view of Spell Out. Start with the syntactic structure in (30a–b) and the corresponding precedence conditions in (30c). Note that the adverb is taken to be adjoined to VP, yielding the familiar two-segment category (the higher segment annotated here as <VP>).[18]

[18] *Contra* proposals which seek to put adverbs in Specifier positions, e.g., Alexiadou (1997), Laenzlinger (1998), and Cinque (1999). Some of these are problematic; Cinque's (1999) proposals, for example, lead to a paradox as discussed in Bobaljik (1999a).

(30)a.



b. $[_{IP}\ DP_1, I']$
$[_{I'}\ I, VP]$
$[_{\langle VP\rangle}\ ADV, VP]$
$[_{VP}\ V, DP_2]$
$[_{DP2}\ D, N]$

c. i. $[_{IP}\ DP_1 \rightarrow I']$
ii. $[_{I'}\ I \rightarrow VP]$
iii. $[_{\langle VP\rangle}\ ADV \rightarrow VP]$
iv. $[_{VP}\ V \rightarrow DP_2]$
v. $[_{DP2}\ D \rightarrow N]$

In this example, there is no issue of Chain Reduction, and the next question to ask is how it is to be linearized. In particular, how does the segment-category distinction play out in terms of linearization? Consider the strings in (31).

(31)a. D I ADV V D N
Sam will never eat the meat

b. D ADV I V D N

c. *D I V ADV D N

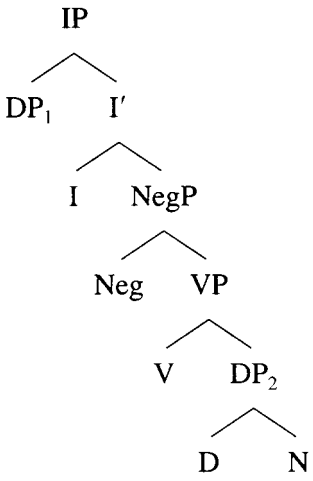
The first one, (31a), clearly satisfies all the precedence requirements imposed by (30c) and is the structure that surfaces when adjacency between Infl and V is not at issue (for example, with future *will* in Infl). I suggest here that (31b) also satisfies all of the requirements imposed by (30c), despite the fact that the adverb precedes Infl, ultimately because the adverb is not dominated by the category VP, but only by a segment of VP. The issue that arises at this point is how to evaluate strings of terminal nodes which do not contain categories *per se* (such as in (31)), relative to precedence conditions stated at least in part over categories (such as VP).

Line ii of (30c) requires that Infl precede 'the category VP', but no general aspect of the theory makes unambiguous what string of terminal nodes must be taken to instantiate the category VP. Above (see the discussion following (29)), I suggested that the precedence requirements on terminal elements are to be derived transitively from the precedence requirements stated over categories with the help of the dominance relations previously defined in the syntax. Following this line of reasoning, VP in line ii of (30c) must be read as the set of terminal nodes dominated by VP. This has the effect that the adverb (or anything else adjoined to VP) will escape the requirement that Infl precede it and can, in essence, float leftwards in the mapping to phonology. Float to the right is prevented by line iii of (30c) which continues to enforce that the adverb precede all elements properly dominated by the VP; this effectively prevents (31c); since the unmoved V is properly dominated by VP, the adverb must precede it.[19]

Assuming that the sentential negation *not* occupies the Spec (or the head) of NegP, it will be dominated by NegP and thus must follow Infl. The relevant structure is given in (32a–b), with the corresponding precedence conditions in (32c).

[19] Note that the reading of precedence conditions as being evaluated transitively in this manner is not forced by any a priori theoretical consideration. Consider, though, the alternative, namely, to read line iii of (30c) as requiring that Infl precede all material dominated by any segment of VP. Such an interpretation would exclude (31b); however, a distinction arises with respect to line iii of (30c). If 'VP' in this line refers to the category VP, then the two interpretations under consideration differ on whether or not they require the adverb to precede itself – the proposal in the text requires only that the adverb precede all terminal nodes dominated by (the category) VP. In the absence of compelling reasons to pursue the alternative interpretation of the precedence conditions suggested in this footnote, and given the problems it creates, I will continue to explore the consequences of the proposal offered in the main text.

(32)a.



b. $[_{IP}\ DP_1, I']$
$[_{I'}\ I, NegP]$
$[_{NegP}\ Neg, VP]$
$[_{VP}\ V, DP_2]$
$[_{DP2}\ D, N]$

c. $[_{IP}\ DP_1 \rightarrow I']$
$[_{I'}\ I \rightarrow NegP]$
$[_{NegP}\ Neg \rightarrow VP]$
$[_{VP}\ V \rightarrow DP_2]$
$[_{DP2}\ D \rightarrow N]$

Of the strings in (33), only (33a) satisfies all the conditions in (32c); (33b) differs minimally from (31b) in that float of negation is blocked – (33b) violates the conjunction of the second and third lines of (32c) precisely because sentential negation is not adjoined to VP but rather dominated by NegP.

(33)a. D I NEG V D N
Sam will not eat the meat

b. *D NEG I V D N

c. *D I V NEG D N

At its core, the idea presented here is that the basic nature of adjunction (the category-segment distinction) itself has the effect that adverbs (or XP-adjoined elements more generally) are somewhat more loosely connected to the phrase structure in a particular way. VP-adverbs escape the linearization requirements in one direction because they fail to be dominated by (because of the category-segment distinction) VP and it is the category VP which is linearized with respect to Infl. This allows adjoined elements to appear to 'float' higher than their syntactic position: a syntactically VP-adjoined adverb can occur to the left of Infl, though the relative order of

other elements in the clause cannot be changed.[20] There is no reason to assume (as was done in earlier versions of the general proposals sketched here, cf. Bobaljik 1995b) that adverbs are invisible for PF-adjacency. What is special about adverbs is that they may be linearized in a position more peripheral to the one which they occupy in the syntactic structure.[21]

Before returning to the main thread of the paper, it is worth pointing out that it is a direct consequence of the spell-out procedure sketched here that the merged Infl and V must be pronounced following the adverb and cannot precede it. Note that this has the effect of answering a long outstanding question: why is it that the result of PF merger always looks like lowering? In previous treatments (including Bobaljik 1995b, see p. 73) there was no answer to this question, but now we are in a position to address it. In the first place, merger does not truly yield 'lowering' – merger applies to a linearized string, not to a syntactic structure: the pronounced combination of Infl and V (an inflected verb) is not 'in' any particular syntactic position at PF. That said, the reason that merger looks like lowering is because the inflected verb obligatorily follows those elements which precede the VP. The discussion of (31c) shows what would go wrong if these linear relations were disrupted.[22]

Clearly, this speculation on linearization opens as many questions as it answers and these must be addressed elsewhere. Note that the float process must be constrained in some way; two obvious directions to pursue are: (i) economy: 'float' is possible only to the extent necessary to allow

[20] This clearly yields the expectation that IP-adjoined material should be able to float to the left of C° in the phonology, if C° must undergo merger with (the verb in) Infl (with the expectation that the IP-adjoined material is nevertheless c-commanded in the syntax by C°). This is exactly the characterization of certain Irish data discussed by McCloskey (1996), as reinterpreted in Bobaljik (1995b, ch. 2) and translated into the current framework. McCloskey provides extensive arguments that certain elements that precede the word consisting of C° + inflected verb (syntactically in Infl) behave nevertheless as if they are adjoined to IP. In particular, when C is negative, it may license a negative polarity item (under syntactic c-command) in the IP-adjunct, despite their respective linear order.

[21] This is effectively the intuition behind the idea that adverbs occupy an independent tier, i.e., that the relative order of adverbs and the relative order of structural elements do not strictly coincide, contrary to predictions of Cinque (1999). See Bobaljik (1999a). Note that the system here is more constrained than that in Bobaljik (1999a) where no predictions are made about relative ordering across tiers.

[22] In principle, merger will also look like lowering in a right-headed language, though there the merged heads will be pronounced to the left of right-adjoined elements (which will of course float to the right). I know of no relevant cases, though perhaps the considerations having to do with headedness and optional movement in Saito and Fukui (1998, section 3) are a place to start.

Pronunciation[23] (as suggested in essence by Howard Lasnik, though in a different guise), and (ii) domains: if spell-out is cyclic, then float will be limited to the periphery of the cycle in which the adverb is spelled out, cf. the *phases* of Chomsky (2001) (this is my interpretation of a suggestion by Danny Fox in work in progress); adopting a cyclic spell-out approach also introduces additional possibilities arising from the interaction with late merger of adjuncts (on which see Ochi 1999; Fox and Nissenbaum 1999). In conclusion, in this brief excursus, I have hoped to demonstrate that there are ways of spelling out what the Spell Out procedure looks like (which must be done in any event) that have as a relatively straightforward consequence the result that adjoined elements such as adverbs will be allowed a certain (limited) freedom in their linearization not afforded to elements that are dominated by the maximal projections in which they reside (heads, specifiers, and complements). Adjunction is special, but if the view of linearization sketched here pans out, the special nature of adjuncts need only be stated once (via the segment-category distinction); the ability of adjuncts to avoid interfering with merger of Infl and V follows automatically.

3.4. *HG as a Morphophonological Phenomenon*

In section 3.1, we saw that in certain environments in the Scandinavian languages inflected verbs remain in the VP just as they do quite generally in English (recall examples (10)–(11)). Presumably, inflection works in the same manner in these cases, i.e., with merger effecting the realization of the inflectional morphology (from Infl) on the verb stem (in V°). This is illustrated in (34), corresponding to (11b), above, with an (apparently) unshifted pronoun.

(34) Det är troligt [att [$_{IP}$ de −te [läs **den**]]]
it is probable that they +PST read it
[Merger successful: O - - - - - - - - O]

All else being equal, we therefore expect merger to also be blocked in the Scandinavian languages by structural (i.e., non-adverbial/non-adjoined) material intervening between Infl and the verb stem. Consider in this light

[23] This could be formulated as a condition that precedence be interpreted as immediate precedence up to pronounceability, i.e., up to adjacency requirements imposed by the morphology of the language. For example, since English lacks an affixal complementizer (of the kind seen in Irish), a parallel to the Irish derivation hinted at in footnote 20 would thus not be expected in English.

(11a), analysed now as in (35), in which object shift has placed the pronoun in a position (e.g., Spec,AgrO-P) between Infl and the verb stem.

(35) * Det är troligt [att [$_{IP}$ de −te **den**$_i$ [$_{VP}$ läs- *trace*$_i$]]]
it is probable that they +PST it read
[Adjacency disrupted: O - - - ∗ - - - - O]

Object shift is ungrammatical in this environment for exactly the same reason that *do*-support is triggered in (17) and (18): the shifted object disrupts the required adjacency relation between the affix and its host (just as the subject does in (18) and the negation in (32)) and thereby prevents the application of *merger*. Note that the shifted object is assumed to occupy a specifier position (not an adjunct) and thus cannot 'float' at PF; the structure is entirely parallel to (32) with AgrOP substituted for NegP. The difference between English on the one hand, and Scandinavian on the other, is in their responses to this situation. Whereas English inserts a dummy *do* to support the stranded affix, the VO Scandinavian languages instead appear to simply prohibit object shift in exactly the environment where adjacency would be disrupted. The appearance in Scandinavian is that the sentence is fully grammatical (11b) with an unshifted weak pronoun object, even for those speakers who in other environments do not allow unshifted weak pronominal objects. When the verb raises out of the VP (e.g., to Infl or C), as in main clauses, shifting the object is permitted since adjacency between Infl and V° is no longer at issue. This is entirely parallel to the lack of *do*-insertion with auxiliaries and modals in English: these elements are in (or move to) Infl (or higher) and thus satisfy the adjacency requirement for inflection trivially (i.e., within a single X° projection, after chain reduction applies, effectively deleting the traces).

There is one way in which the account of *do*-insertion and that of object shift as presented above differ, though. Merger is taken to be a post-syntactic operation in all cases, occurring at the PF-interface, i.e., somewhere intermediate in the mapping of syntactic structure to phonetic form as discussed in section 3.3. Insertion of *do* is, in essence, a PF response to a PF problem: the lack of adjacency at this level. As presented in (34)–(35) (and in Bobaljik 1994b, 1995b, ch. 2) the parallel account of HG effects would seem to involve the apparent blocking of syntactic movement, triggered by the lack of adjacency at PF. Thus, the pair in (34)–(35) was presented as if movement fails to occur just in case it will cause problems later, i.e., PF crash. In essence, the account invoked a PF filter on syntactic derivations, raising associated questions of locality of computation.

Assuming this account of HG effects to be essentially correct, the copy theory provides a straightforward means of casting this analysis without such an appeal to PF filters on syntactic derivations. Rather than taking the movement to fail to occur in examples like (34), we may take object shift to always apply in the syntax, but it is the subsequent PF decision of which copy to delete via Chain Reduction that is constrained by the adjacency requirement on merger. The representations in (34)–(35) are thus more properly those in (36a–b), where strikethrough indicates PF-deletion. (Recall that the lack of *do*-support with subject *wh*-questions in English shows that traces [PF-deleted copies] do not block merger, see (19).)[24]

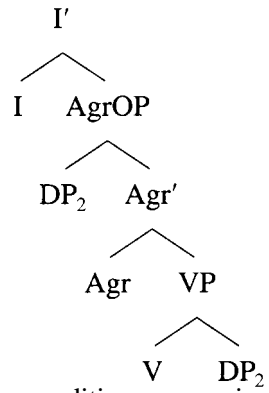
(36)a. Det är troligt [att [$_{IP}$ de −te ~~den~~ [$_{VP}$ läs **den**]]]
it is probable that they +PST ~~it~~ read it
[Merger successful: O - - - - - - - O]

b. * Det är troligt [att [$_{IP}$ de −te **den**$_i$ [$_{VP}$ läs ~~den$_i$~~]]]
it is probable that they +PST it read ~~it~~
[Adjacency disrupted: O - - ∗ - - - - O]

This is straightforwardly expressed in terms of the Spell-Out procedure put forward in section 3.3. The (partial) derivation in (37) corresponds to the lower portion of (36).

[24] For the moment, assume that the theory is supplemented with a preference at PF for pronouncing the higher copy, in essence, Pesetsky's (1989) *earliness* condition. There are a number of ways to achieve this in the present framework. In Pesetsky (1998), Bobaljik (1995b, p. 350), Franks (1998), it is simply a property of the PF module that it prefers pronunciation of the higher copy. See Nunes (1995, 1999) for a more elaborated theory. An alternative is explored in Bobaljik (1994a, 1995b), see section 4.2, below. Various authors (notably Vikner 1997, Broekhuis 2001) have attempted to argue that the object shift facts require multiple, re-rankable, violable constraints, i.e., Optimality Theory. Note that the present account requires exactly one violable (i.e., economy) condition: whatever favours pronunciation of the higher copy. There is no evidence in this data to motivate an OT approach to the problem. Note that Diesing (1997) requires two conditions, *Procrastinate* and the *Scope Condition*, both violable and ranked with respect to one another, but, correctly, she does not see in this any evidence for OT over an Economy framework.

(37)a.



b. $[_{I'}$ I, AgrP$]$
$[_{AgrP}$ DP_2, Agr′$]$
$[_{Agr'}$ Agr, VP$]$
$[_{VP}$ V, $DP_2]$

Precedence conditions are assigned and Chain Reduction then applies. If the higher copy is deleted, the result is (38a), if the lower copy is deleted, the result is (38b).

(38)a.	higher copy deleted	b.	lower copy deleted
i.	$[_{I'}$ I → AgrP$]$	i.	$[_{I'}$ I → AgrP$]$
ii.	$[_{AgrP}$ Agr′$]$	ii.	$[_{AgrP}$ DP_2 → Agr′$]$
iii.	$[_{Agr'}$ Agr → VP$]$	iii.	$[_{Agr'}$ Agr → VP$]$
iv.	$[_{VP}$ V → $DP_2]$	iv.	$[_{VP}$ V$]$

Importantly, only (38a) can be linearized, consistent with the requirement that Infl and V be adjacent. To see this, consider the possible linearizations in (39).

(39)a. I D_{OBJ} V

b. D_{OBJ} I V

c. I V D_{OBJ}

If the precedence conditions are those in (38b), none of the linear strings in (39) is legitimate. The first violates the requirement that I and V be adjacent. The second violates (38b.i) since Infl must precede AgrP which dominates the DP (hence Infl must precede D). The third violates (38b.ii) – the object must precede the V since the latter is dominated by Agr′. This last string is, however, consistent with the precedence conditions in (38a).

The analysis is extended straightforwardly to compound tenses (as in (12)) on the assumption that the landing site of object shift (e.g., AgrO-P) is taken to be between the main verb stem (V°) and the projection hosting participial morphology (‘PartP’), i.e., immediately above the main

verb.[25] The main verb remains in (its) VP and the object is prohibited from shifting. This is illustrated in (40), corresponding to (12d):

(40) * [$_{CP/IP}$ Hann hefur [$_{PartP}$ -ið [$_{AgrOP}$ **bókina**$_i$ [$_{VP}$ les- ~~bókina~~$_i$]]]
He has PRT read
[Adjacency disrupted: O - - - - ∗ - - - - - - - - O]

One important point to note is that the analysis fails if the object shift position is higher than PartP. If this were the case, then adjacency would no longer be at issue (and the ungrammaticality of (12b–d) would be unexplained). Assuming that accusative case is connected to the main verb (in essence, that transitivity is a property of verbs or verb classes), it seems reasonable that the accusative case-checking position should be within the range of heads that the verb moves to/through and no higher. This line of reasoning should serve to ensure that the object shift position, be it a specifier of AgrOP or vP, will be below PartP.

A conceivable alternative (taking the gross architecture of (40) to be correct) which would, if substantiated, weaken the current proposal is that put forth in Zwart (1994, 1997). Zwart proposes in essence that the verb stem raises overtly to the head of PartP, and that the object undergoes short, overt object shift to AgrO-P. For him (12b) is ungrammatical because the object has raised too far (i.e., beyond AgrO-P; see also fn. 25). Zwart argues that object shift does occur in compound tenses in Icelandic, and

[25] This assumption is stated explicitly in Bobaljik (1995b, p. 83). As pointed out in Holmberg (1999) and by a reviewer, there is an inconsistency in that work which I have sought to avoid here. For the record, the tree on p. 84 of Bobaljik (1995b) cannot correspond to the example it is meant to correspond to (Bobaljik 1995b's (35b)), as the position assumed for negation is too low (adjoined to the wrong VP). Examples involving multiple verbal heads (e.g., compound tenses and modal constructions) show clearly that the position of negation in these languages is to the left of the highest verbal maximal projection: negation may occur no further to the right than it does in (i) (see Sells 2000 for further discussion).

(i) ... att jag inte [$_{Aux/VP}$ har gett boken till henne]
that I not have given book.the to her
... that I have not given the book to her. (Swedish, Sells 2000, (3c))

Combining the assumption that the position of negation is determined relative to the highest verbal projection, while the position of AgrO is determined relative to the lexical verb yields the correct word order possibilities, rectifying the oversight in Bobaljik (1995b), and correctly excluding the ungrammatical examples in (12). Example (35b) in Bobaljik (1995b) is indeed ungrammatical, but for an independent and tangential reason: either the object has moved too far to the left or the negation is adjoined too low.

that the grammatical (12c) is an example of object shift with the structure in (41).

(41) $[_{CP/IP}$ Hann hefur $[_{PartP}$ les-ið $[_{AgrOP}$ **bókina**$_i$ $[_{VP}$ t_{verb} $t_i]]]]$
He has read-PART book.the

Note that Zwart (1994) offers no account of the pronoun cases at all, relegating them to cliticization and therefore behaving "in a way that is not at all well understood" (p. 236). While it is certainly true that there are differences between pronouns and full DP objects, one point where there happens to be no difference is with respect to the Holmberg's Generalization effects in compound tenses (12) and the absence of such effects in the OV languages (section 3.5 below). An adequate analysis of Holmberg's Generalization effects should therefore be able to account for the phenomenon as it applies to pronouns and DPs alike.[26]

In support of the analysis in (41), Zwart (1994, p. 238) cites the example in (42) from Collins and Thráinsson (1993, p. 144, paraphrase added).

(42) Jón hefur lesið bækurnar oft.
J. has read-PART books.the often
John has often read the books.

Zwart argues that this sentence involves an adverb (*oft* 'often') adjoined to the left edge of the VP in (41) and therefore involves leftwards movement of the object around this adverb. By implication, he thus rejects Collins and Thráinsson's claim that "the adverb *oft* 'often' can appear at the end of the VP even if there has not been object shift, as the . . . example [(42)] shows" (p. 144). By way of argument, Zwart offers only that (42) cannot have "a reading in which the adverb modifies the [auxiliary] verb', though it is unclear what the excluded reading would be. Zwart's view that the adverb cannot be right adjoined to the VP is largely rooted in his commitment (see Zwart 1993, 1997) to the *Antisymmetry* program outlined in Kayne (1994), under which there is no rightwards movement, no rightwards ad-

[26] Tying the position of the object directly to the position of the verb, e.g., via true cliticization, is unfeasible for two reasons. First, the shifted object need not be adjacent (or even close) to a raised verb; in any V2 structure with a non-subject topic, the subject will intervene between the verb and the shifted pronoun, as in (7a). Second, while weak pronouns shift obligatorily for many speakers in all the Scandinavian languages, so too do specific full DP objects in Icelandic, which by their very nature as full DPs are unlikely to be amenable to a cliticization analysis.

junction, and no directionality parameter for head-complement relations. This program is not adopted in the current work.[27]

More convincingly, Zwart's proposal can also be challenged on empirical grounds. Zwart's analysis is that (42) involves object shift across the adverb *oft* which he takes to mark the left edge of VP. For him, this is the same operation that places the object to the left of the adverb in matrix clauses in (8)–(9). Yet there are important differences in the possible orders among objects and adverbs in simple versus compound tenses. As noted by Thráinsson (1984) and Holmberg (1985), "if an auxiliary is present, then no adverb can appear between the verb and the object" (Collins and Thráinsson 1996, p. 135, n. 5). Thus, while certain objects can immediately follow a VP-adverb when the verb has raised (43a), the same order is impossible in a compound tense (43c) or modal + infinitive construction (43b) where the main verb is standardly taken not to have raised.

(43)a. Ég les sjaldan þessa bók.
I read seldom this book.
I seldom read this book.

[27] See Williams (1998) for a critique of Zwart's proposals regarding word order and headedness. Note that Williams also critiques the current account, offering as an alternative the proposal that θ-assignment must be in a uniform direction in a given language (cf. related LFG proposals such as Kaplan and Zaenen 1989 and Sells 1998). Thus, for Williams, the ungrammaticality of examples such as (12b,d) derives from the fact that the objects appear to the left of the main verb, while in Icelandic, θ-assignment must be rightwards (at least prior to, e.g., *wh*-movement or topicalization). Williams's proposal (and others appealing to θ-assignment) may not be sufficiently general however, as HG effects are manifested not only with direct objects, but also with (adjectival and verbal) small clauses (Holmberg 1986, pp. 169, 222, 1999, pp. 8f) and (arguably) ECM subjects (Thráinsson 1997), where θ-assignment from the main verb is not at issue. The relevant Swedish examples from Holmberg (1999, p. 8) are reproduced below. Object shift of the small clause subject is possible when the main verb raises (i) (with weak pronouns only, as expected – Holmberg 1986, p. 222), but not possible in compound tenses where the main verb has not raised (ii):

(i) Jag hörde **henne** inte [$_{SC}$ *trace* hålla föredrag].
I heard her not give talk
I didn't hear her give a talk.

(ii) * Jag har **henne** inte hört [$_{SC}$ *trace* hålla föredrag].
I have her not heard give talk
I have not heard her give a talk.

b. Ég mun {sjaldan} lesa {*sjaldan} þessa bók {sjaldan}.
I will seldom read seldom this book seldom
I will seldom read this book.

c. *Ég hef drukkið sjaldan kaffi.
I have drunk seldom coffee
I have seldom drunk coffee.
(Icelandic, Thráinsson 1986, pp. 238, 244, 247)

Similar considerations hold in constructions with more complex structure, such as double-object constructions and those with other VP-internal material.

(44)a. Íslendingar sýna (*oft*) Annie (*oft*) forsetann (*oft*).
Icelanders show frequently Annie frequently the.president frequently
Icelanders frequently show Annie the president.

b. Íslendingar munu (*oft*) sýna (**oft*) Annie (?**oft*) forsetann (*oft*).
Icelanders will freq. show freq. Annie freq. the.president freq.
Icelanders will frequently show Annie the president.
(Icelandic, Thráinsson 1984, pp. 251–252 [paraphrases added])

(45)a. Stúdentarnir stungu smjörinu *allir* í vasann
the.students put the.butter all in the.pocket
The students all put the butter in their pockets.

b. *Stúdentarnir hafa stungið smjörinu *allir* í vasann
the.students have put the.butter all in the.pocket
The students all put the butter in their pockets.
(Holmberg 1985, p. 161)

The generalization is that when the main verb does not raise, the lexical VP is inviolable – while adverbial material (including floating quantifiers – *contra* Sportiche 1988; see Bobaljik 1998) can occur to the left or to the

right of the VP, such material cannot occur between the lexical verb and its object, or between the first object and other VP-internal material. When the main verb raises, adverbs may be interspersed freely (44a), (45a) – as expected since the object(s) are free to shift. The contrasts in (43)–(45) receive a straightforward treatment on any account assuming Holmberg's Generalization. The only way for the adverb to be interposed between the two objects in (44a) is for the higher one [*Annie*] to have undergone object shift across an adverb on the left edge of VP. This we know independently to be possible, but only when HG is not at issue (see Collins and Thráinsson 1996 for discussion and further references). In (44b), the integrity of the VP is inviolable; the adverb may again adjoin to the left of the VP (surfacing between the modal and infinitive), or to the right of the VP (surfacing sentence-finally). If the main verb and both objects remain in the VP, as maintained here, the adverb has no VP-internal position to attach to and the ungrammatical orders are correctly excluded. By analyzing (42) as bi-clausal with verb-raising in the embedded 'clause', Zwart predicts that the matrix orders should be observed in the embedded clause, thus incorrectly admitting all positions for *oft* in (44b). In sum, the facts follow directly from Holmberg's Generalization and must be simply stipulated on Zwart's assumptions.[28]

Note that this result is not jeopardized by the limited freedom of word order afforded to adverbs by the proposal in section 3.3. A VP-adjoined adverb may be specified to precede (be 'left-adjoined') or follow (be 'right-adjoined') the VP. If it is specified to precede the VP, it may end up preceding other material as well (as in the merger cases, yielding the illusion of leftwards movement). If the adverb is specified to follow the VP,

[28] While Zwart (1997, p. 242) continues to maintain that the verb and object move separately in compound tenses, Kyle Johnson points out (personal communication, 9/99) that the results in (44)–(45) could be described in the Antisymmetry framework if it is the entire VP that moves (leftwards) across the adverb. This is correct, but it is hard to see that this is actually an expectation of the Antisymmetry framework; exactly the ungrammatical orders could be equally easily derived if the object shifts first to a position below the adverb and then the 'remnant' VP moves leftwards across the adverb, as in (i).

(i) ?... [$_{VP}$ sýna Annie t_i]$_k$ oft [forsetann$_i$ t_k]
show Annie *frequently the.president*

While in violation of the Proper Binding Condition, this type of movement is characteristic of derivations within the Antisymmetry framework (see Müller 2000 for some discussion). Thus, while I agree that the Antisymmetry framework can describe the data using exclusively leftward movements (and adjunction), it is not clear (to me) that the Antisymmetry theory actually excludes any particular orders, in contrast to the more canonical view adopted here.

it must follow all material properly contained in the VP. In no case, though, is a VP-adjoined adverb able to be linearized between two elements that are both contained in the VP.

The considerations in the preceding paragraphs show not only that Zwart's analysis is untenable as presented, but that there is good reason to believe that the structure in (40) is correct. Object shift – the short, leftwards movement of a pronoun or specific DP object to a position beyond the left periphery of the VP – is blocked in compound tenses, just as it is in all constructions where the main verb fails to raise in the Scandinavian languages. In this section, a unified account has been given of the collected environments in which Holmberg's Generalization effects obtain.

This 'adjacency' analysis thus takes English *do*-support and HG effects in the Scandinavian languages to be in a sense two sides of the same coin. The requirement that the inflectional affixes have a host blocks object shift from creating a configuration in which the verb cannot be inflected under adjacency (HG). When such a configuration does arise in English, the same requirement forces insertion of pleonastic material – *do* – to support the otherwise stranded affixes.[29]

3.5. *The Importance of Headedness*

The account sketched above interacts in an interesting way with headedness. Specifically, it predicts that in the OV Germanic languages (i.e., in which the heads of VP and IP are assumed to be on the right, while specifier and complement positions for arguments are on the left) HG effects should not obtain. This is so, because the object – shifted or not – does not intervene linearly (at PF) between the verb stem in V° and the inflectional or participial affix(es) in Part° or Infl.[30] Thus, adjacency is not at issue.

[29] An open question at this point is why the languages respond differently to disruptions of adjacency; in particular why does Scandinavian not make use of *do*-support, allowing the object to shift? One might suspect that the answer may be related to the fact that auxiliaries and modals in the Scandinavian languages show no contrast with main verbs: all fail to raise in the same environments. Compare (i) to (10) above; even the auxiliary *havde* 'had' is prohibited from raising out of the VP across the VP-adjoined adverb.

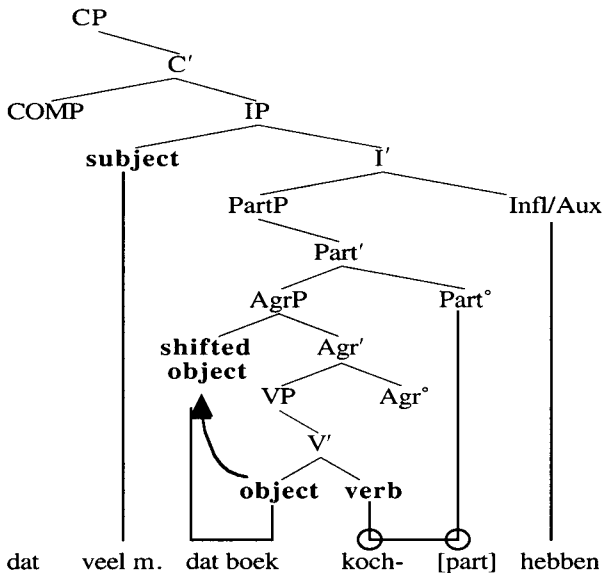
(i) Jeg spurgte [hvorfor [$_{IP}$ Peter {*havde} [$_{VP}$ ofte {havde} læst den]]]
I asked why Peter had often had read it
I asked why Peer had often read it. (Danish, Vikner 1995, p. 145)

A reasonably straightforward story can be told in terms of economy considerations; see section 3.7, below.

[30] Thus far, no clear arguments have been provided to determine whether the phrase-final finite verb in the OV languages is in its base (V°) or a derived (e.g., Infl) position. If

This is schematized in (46); the example corresponds to a Dutch embedded clause with a compound tense ((47a), below).

(46)



As this schema shows, whether the object *dat boek* 'that book' occupies its base position (complement of V°) or the shifted position (Spec,AgrP), the adjacency relation between the verb stem and Part° is unaffected, and PF-merger is not blocked. To the extent it is testable, the prediction of the adjacency account is borne out; as noted by a number of authors (e.g., Zwart 1994; Koopman 1995), the OV Germanic languages do not prohibit object shift in compound tenses, while all Scandinavian languages (includ-

right-adjunction to VP is prohibited in German and Dutch, there is no direct evidence from word order facts. For theory-internal reasons, Bobaljik and Thráinsson (1998) argue that the verb raises to Infl (in which case these languages are like Icelandic, and we might have expected HG effects only in compound tenses and modal constructions). See also Gärtner and Steinbach (1994) for a convergent argument from consideration of the distribution of light *tun* 'do' in varieties of German. If, as others have claimed, the finite verb is in V°, then HG effects would have been expected in all embedded non-V2 clauses. In either case, if HG had been a property of locality as in Chomsky (1993), Bobaljik and Jonas (1996), etc., then HG effects would have been expected at least in compound tenses, in the head-final Germanic languages. Note also that I leave the internal morphological structure of the participle in German and Dutch open, see also fn. 17 above.

ing Icelandic) do, as an effect of HG. The following examples (arguably) illustrate object shift in compound tenses in Dutch and German.[31]

(47)a. … dat veel mensen dat boek$_i$ gisteren t_i gekocht hebben
… that many people that book yesterday bought have
… that many people bought that book yesterday. (Dutch)

b. Heuer hat er den Zaun$_i$ sorgfältig t_i gestrichen
this.year has he the fence carefully painted
This year, he painted the fence carefully. (German)

The absence of HG effects in the verb-final Germanic languages is a significant stumbling block for earlier accounts couched in terms of Equidistance (Chomsky 1993; Bures 1992, 1993; Bobaljik and Jonas 1996). As these approaches appeal only to hierarchical structure, they predict that the corresponding structures will be subject to corresponding requirements, and thus they predict HG effects in all languages.

It is commonly argued that the distribution of object phrases in the OV languages, while not subject to HG effects, is determined by some semantic or LF-factor, essentially the split between given and new information (see de Hoop 1992; Bobaljik 1995b; Diesing 1997, and references therein). A recent article, though, has suggested a role for PF here too. Neeleman and Reinhart (1998) suggest that the decision to pronounce an object preceding or following an adverbial in Dutch interacts with the assignment of phrasal stress. (Over)simplifying somewhat, they propose that sentential stress falls on the most deeply embedded constituent (after Cinque 1993), and that whatever element comes to bear this stress is liable to be in focus. This will end up being the object if it has not undergone object shift or the verb if the object has shifted away. Thus, they "only expect a preference for [object shift] when the verb needs to be contrastive (the only focus), or a preference for [no object shift] when the object needs to be the sole focus" (p. 343). While they implement this idea in terms of a PF-filter on syntactic derivations, and without movement (i.e., by base-generating both shifted and non-shifted orders), it is not a great stretch to

[31] There are a number of caveats to be made here, not least among which are questions about the proper identification of the position of the object (in particular the distinction between [focus] scrambling and object shift) and the position of the verb. See Bobaljik (1995b), Vikner (1995) for contrasting views, and references therein for discussion. This is also directly relevant to Yiddish, which appears to allow A′-scrambling in clauses with compound tenses as pointed out by Molly Diesing and Chris Collins (see Bobaljik 1995b, p. 77, fn. 18 for [somewhat superficial] discussion).

see how their insight could be implemented in the framework adopted here. Since HG is not at issue, the object is free to move syntactically, leaving a copy. Whether the higher or the lower copy is pronounced should, by all rights, be a matter for PF to decide, and thus it would be unsurprising if a crucial factor involved the assignment of sentential stress. Despite its inherent interest, I will not pursue this line of inquiry further here.

Summing up, the major pieces of the analysis are the following: object shift is a syntactic phenomenon. It involves the 'overt' movement of the object to the derived object position, a position external to the VP, between VP and either IP or PartP. When the verb also raises, pronunciation of the copy of the object in the higher position causes no problems and is thus possible and even required for pronouns (and specific objects in Icelandic) for many speakers. However, just in case the verb fails to raise overtly, pronunciation of the higher copy of the object would create problems for inflecting the verb via merger. The PF problem (adjacency) engenders a PF response (pronunciation of the lower copy). The adjacency account relates HG effects to a well-documented phenomenon in English (*do*-support) (and potentially to other phenomena; see Bobaljik 1995b) and, more importantly, correctly predicts the correlation with headedness, explaining the lack of HG effects in head-final Germanic languages.

3.6. *Holmberg's Generalizations: Object Shift and Particle Shift*

In section 3.1, I noted that the version of HG which takes object shift to be dependent on verb raising (i.e., the generalization for which an account is given in this paper) is somewhat misnamed in that it is not the actual generalization that Holmberg (1986, 1999) himself offered. Holmberg argues that "not just an unmoved verb, but any phonologically visible category inside VP preceding the object position will block object shift" (Holmberg 1999, p. 2). A special stipulation exempts adjuncts from being phonologically visible at the relevant stage of the derivation (p. 15). Three constructions distinguish the two characterizations of HG: verb-particle constructions as in (48), double-object constructions (49), and a peculiar form of verb topicalization (50).[32]

[32] Holmberg also gives examples with prepositions. It is not clear that the object of a preposition should ever raise to Spec,AgrO-P, though, which may cast doubt on the relevance of such examples.

(48) * Dom kastade **mej**$_j$ inte ut t_j
they threw me not out
They didn't throw me out. (Standard Swedish, Holmberg 1999, p. 2)

(49) * Jag gav **den**$_i$ inte Elsa t_i
I gave it not Elsa
I didn't give it to Elsa. (Swedish, Holmberg 1999, p. 2)

(50) Kysst har jag **henne** inte
kissed have I her not
Kissed her, I haven't. (Swedish, Holmberg 1999, p. 7)

In essence, Holmberg's (1986, 1999) accounts which relate (48)–(50) to the verb movement cases in (11b), (12b, d) and (13) share with the account presented above the leading idea that what is at stake is not a syntactic condition, but something having to do with the mapping of syntax to phonology. The account I have offered takes the important factor to be in the relationship of the inflectional affixes (in Infl or Part) to the verb stem, a relationship which is subject to a strict adjacency condition and which is disrupted by a shifted object. Holmberg likewise posits an adjacency condition, but in Holmberg (1999) what must be adjacent are the base and shifted positions of the object (adverbs are invisible). In the canonical cases of HG effects in (11)–(13), what goes wrong is that the lexical verb disrupts the adjacency and thus object shift is blocked. In (48) and (49) the particle and indirect object (respectively) intervene between the base and derived positions of the object and thus block object shift. Chomsky (2001) proposes an adaptation of Holmberg (1999) to the theoretical framework presented there, but maintains the aspects of Holmberg's account which are relevant to the discussion here.

In contrast to Holmberg's and Chomsky's proposals, the account presented in section 3.4 does not predict the ungrammaticality of examples (48) and (49), nor does it in any obvious way predict the grammaticality (for some, but not all speakers, Holmberg 1999, p. 11) of (50). In what follows, I argue that this is correct; specifically, I will argue that (48) and (49) are properly subsumed under broader generalizations having to do with locality conditions on A-movement. I will show that the broader generalizations are quite clear and well-supported, but are in principle not captured by Holmberg's and Chomsky's accounts. I will conclude therefore that the account presented here is to be preferred over those accounts on empirical considerations.

Regarding (50), I have nothing new to add at this point. Holmberg considers and rejects an analysis of (50) involving remnant VP topicalization and suggests instead that this construction involves long head movement (of the participle) to Spec,CP. If we adopt Holmberg's suggestion while keeping the account presented above, long head movement has the effect that adjacency between the head of PartP and the lexical verb stem is not at issue and object shift should be possible. While this appears promising, it might leave as problematic the respective order of the pronoun and negation (see the discussion of (40), above; though note that Kaiser (1997, p. 114) reports the order negation-pronoun in an example otherwise analogous to (50) to be marginally acceptable) depending on particulars of how chain reduction would work for long head movement.[33]

Returning to (48) and (49), in both examples the verb has moved out of the VP. The requirements of the verb and Infl are satisfied and thus adjacency between V° and Infl is not at issue. Hence, these cannot be subsumed under the account of the restrictions on object shift offered above. Thus, to decide in favour of the approach I have suggested over that pursued by Holmberg, it is important to show that the unacceptability of (48)–(49) is attributable to conditions other than those that characterize the core instances of HG discussed above. In fact, there is strong evidence that the unacceptability of these examples has to do with restrictions on A-movement that subsume, but extend beyond, object shift. Consider in this light the examples in (51), which show that the judgments for passive are the same as those for object shift. Passive in a particle construction in standard Swedish (51a) is as bad as object shift (48) and (51b) illustrates the unacceptability of (analytic) passive of a theme.

[33] The properties of the construction, which Holmberg is the first to describe, have not been fully catalogued (see Holmberg 1999, pp. 11–12). A relevant consideration perhaps is that Swedish VP-topicalization differs strikingly from English in that the fronted VP and the resumptive *göra* 'do' share the same inflectional morphology (finite, infinitival, or participial) as discussed in Källgren and Prince (1989). Compare (i) to the ungrammatical English (ii):

(i) Läs-er bok-en gö-r han nu
read-PRES book-DEF do-PRES he now
Reading the book, he is now. (Swedish, Källgren & Prince 1989, p. 47)

(ii) *Reads the book, he does. cf. Read the book he does.

If the resumptive verb *gör* 'does' bears the main inflection from Infl, this suggests, perhaps, that there is an alternative morphological strategy for inflecting preposed, finite verbs in Swedish. Of course, this raises other questions about the nature of inflection more generally.

(51)a. *Skräpet måste bli kastat ut
scrap.the must AUX thrown out
The scrap had to be thrown out.
(Swedish, Svenonius 1996, p. 19)

b. *Bogen blev givet Jens
book.the AUX given J.
Jens was given the book.
(Danish, Holmberg and Platzack 1995, p. 215)

Note that A′-movement of the theme is possible in both constructions (52); the object is accessible for movement, just not for A-movement.

(51)a. Vad smutsade Kalle ner?
what dirtied K. down
What did Kalle (make) dirty?

b. Vad gav Kalle Elsa?
what gave K. E.
What did Kalle give Elsa? (Swedish)

These facts suggest that the problem with (48) and (49) is one of A-movement from the post-particle or post-indirect object position. Neither object shift nor passive is possible. This conclusion is strengthened by deeper consideration of variation in the verb-particle construction in Scandinavian.

The first relevant observation is that (standard) Swedish is alone among the Scandinavian languages in requiring the object to follow the particle. In Danish, Icelandic, and Norwegian, the object may (or must in Danish) precede the particle.

(53)a. Vi slap {*ud} hunden {ud} (Danish)

b. Við hentum {út} hundinum {út} (Icelandic)

c. Vi slapp {ut} hunden {ut} (Norwegian)

d. Vi släpte {ut} hunden {*ut} (standard Swedish)
we let out the.dog out
We let the dog out. (Svenonius 1994, p. 169, 1996b, p. 10)

The variation in (53) which we may refer to as 'particle shift' (though with no commitment to any particular analysis intended) is independent of object shift. One difference between object shift and particle shift is shown by Danish, in which a full DP object can never undergo object shift (see section 3.1) but in which a full DP must precede the particle. Another difference, as noted by Svenonius (1996a, p. 63), is that the particle shift alternation (where both orders are possible, as in Icelandic) is not contingent upon verb movement. Thus, while object shift is impossible in a compound tense (13), the DP-particle order is possible in such an environment (54a) (Vinka 1998, p. 272 makes the same point for Swedish dialects, see below).

(54)a. Ég hef gert bílinn upp.

b. Ég hef gert upp bílinn
I have fixed the.car up the.car
I have fixed up the car. (Icelandic, Svenonius 1996a, p. 64)

Holmberg has observed that particle shift feeds object shift. Thus, in standard Swedish the object obligatorily follows the particle (53d), and object shift is blocked (48). In Norwegian and Danish, the participle may (53c) or must (53a) precede the particle, and object shift is permitted (55).

(55)a. De kastet **meg** ikke ut
they threw me not out
They didn't throw me out. (Norwegian, Holmberg 1999, p. 2)

b. Jeg skrev **det** faktisk op
I wrote it actually up
I actually wrote it up. (Danish, Holmberg 1986, p. 200)

It is the fact that the acceptability of the object shift order in particle constructions (object precedes VP) neatly tracks the acceptability of the particle shift order (object preceding particle) that Holmberg takes to support his view that the same generalization should cover both. But Holmberg overlooks the fact that the covariation extends beyond object shift. As Svenonius (1996b, p. 19) observes (see also Taraldsen 1991, pp. 245–246), the variation in (53) also feeds variation with respect to passive. Thus, in standard Swedish, where the theme as an object obligatorily follows the particle (53d), the same theme is blocked from undergoing (analytic) passive (51a), but in Danish, Norwegian, and Icelandic, where

the object can or must precede the particle, the object may also undergo analytic passive in the verb particle construction.[34]

(56)a. Hunden blev smedet ud
dog.the AUX thrown out
The dog was thrown out. (Danish, Svenonius 1996b, p. 19)

b. Hundinum var hent út
dog.the AUX thrown out
The dog was thrown out. (Icelandic, Svenonius 1996b, p. 19)

c. Hunden ble sluppet ut
dog.the AUX let out
The dog was let out. (Norwegian)

The cross-linguistic tracking of the passive and object shift patterns surfaces again internal to certain varieties of Swedish as brought to light by Vinka (1998, 1999). In some varieties (including Northern varieties and ones spoken in Finland, cf. Holmberg 1986, p. 238, n.9), there are two classes of particles (with perhaps further subdivisions), which we might call *transparent and non-transparent*.[35] Vinka shows that the two classes of particles behave systematically differently with respect to a cluster of syntactic properties, including: word order in active sentences, word order in passives, possibilities for the particle to prefix to the verb, optionality, the possibility of light verb substitution, and interaction with object shift. Thus, internal to the dialects which he describes, non-transparent particles

[34] Prefixation of the particle to the participle reverses the judgments in all cases (including Swedish). Also, the Swedish 's-passive' behaves differently. See Svenonius (1996b), Vinka (1998) for discussion.

[35] The term *transparent* is from Wurmbrand (2000), who contrasts it with *idiomatic*; Vinka's terms are *predicative* and *non-predicative*, respectively. Transparent particles are essentially resultative. For example *av* 'off' in *tog dem av* 'took them off' [the shoes] is predicative since the shoes become 'off' as a result of the action (likewise for 'out' in 'throw out', 'on' in 'switch on', etc ...). Non-transparent particles in Swedish include aspectual particles (as *upp* 'up' in *drack upp* 'drank up', *till* 'to' in *plattade till* 'flattened', lit. 'flattened to') and truly idiomatic particles (as *ner* (lit. 'down') in *smutsade ner* 'dirtied', lit. 'dirtied down'). The two distinct classes of particles also show different syntactic behaviour in German (see Wurmbrand 2000) and apparently Norwegian and Icelandic (see Svenonius 1996b, p. 30).

do not permit the order object preceding particle ((57a) cf. (53d)), but transparent particles do (57b–c).[36]

(57)a. * Kalle smutsade den ner
K. dirtied it down.
Kalle made it dirty.

b. Kalle tog dem av
K. took them off
Kalle took them off.

c. Kalle satte den på
K. switched it on
Kalle switched it off. (%Swedish, Vinka 1998, p. 271)

As with Icelandic, the possibility of the particleshift orders in these varieties of Swedish is independent of object shift. Thus, in embedded finite clauses where object shift is blocked ((58a), cf. (11b)) the object > particle order is nevertheless permitted in these varieties (58b).

(58)a. * Jag vet [att Kalle läste den inte]
I know that K. read it not
I know that Kalle didn't rad it.

b. Jag vet [att Kalle inte tog dem av]
I know that K. not took them off
I know that Kalle didn't take them off.
(%Swedish, Vinka 1998, p. 272)

Like the cross-linguistic variation discussed above, particle shift in this dialect feeds both object shift and passive. Object shift is impossible across non-transparent particles, but acceptable (or obligatory, up to HG) in constructions with transparent particles (i.e., where it could come from the pre-particle position) as in (57b)). This is shown in (59).

(59) Kalle tog dem inte av
K. took them not off
Kalle didn't take them off.

[36] Vinka (1998, p. 271, n.2) also notes that even for those speakers who reject (57b) there is a clear contrast such that examples involving shift across a non-predicative particle are decidedly worse than those involving shift across a predicative particle. The existence of such a contrast was confirmed by Anders Holmberg, Peter Svenonius, and Ida Toivonen (personal communication 1998).

Similarly, constructions with non-transparent and transparent particles contrast minimally with respect to the possibility of passive. Compare (60a) to (57a) and (60b) to (57c).

(60)a. *Tröjan blev smutsad ner
shirt.the AUX dirtied down
The shirt was made dirty.

b. Radion blev satt på
radio.the AUX switched on
The radio was switched on.
(%Swedish, Vinka 1999, pp. 581–82)

In sum, whatever analysis of the object-particle orders is assumed, the generalization that emerges across Scandinavian (and within certain varieties of Swedish) is essentially the following: *An object which can only appear in the post-particle position is blocked from further A-movement (i.e., object shift and passive).* Importantly, such objects can undergo A′-movement, as illustrated in (52a), in which the particle is non-transparent. Put differently, the strong tracking effects among object shift and passive lead to the expectation that whatever account is given of one should extend straightforwardly to the other. In principle, this is possible on an analysis involving locality conditions on A-movement, but is impossible under Holmberg's (1999) proposal to relate the facts in (48) to HG (and under the revision of Holmberg's analysis in Chomsky 2001).

A unified analysis is impossible because Holmberg's account is built on stating an adjacency condition on the object movement itself (or the resultant chain). Thus, object shift in (48) is excluded because the pronoun has moved across the particle, which, unlike adverbs, is taken to bear phonologically visible focus features. Likewise, object shift in a compound tense is blocked (12b) because the object crosses an overt verbal head, namely, the participle. But this analysis cannot be extended to the passive cases since in the acceptable examples the movement of the underlying object crosses (at least) the finite verb and the auxiliary, as in (56) and (60b), even though verbs and participles in these languages trigger the normal HG intervention effects.[37]

[37] Chomsky's (2001) account shares the relevant properties with Holmberg's and thus faces the same objection. In a nutshell, Chomsky's system allows (and in fact requires) the object to move only when such movement has a particular effect on the interpretation (Chomsky's INT vs INT′, p. 27). Given other assumptions, this arises only when the movement is string vacuous (within v*P, but excluding adverbs). In cases where the

Similar considerations appear to hold of the double object construction (though here there is somewhat more variation reported). Thus, Holmberg (1986, 1999) argues that the failure of the direct object (theme) to be able to shift across an indirect (goal) argument should be a part of HG, i.e., since the indirect object intervenes between the base and shifted positions of the direct object. Relevant examples are given in (61) and (62).[38]

(61)a. Jag gav inte Elsa den
I gave not Elsa it.
I didn't give it to Elsa.

b. *Jag gav den inte Elsa
I gave it not Elsa
I didn't give it to Elsa. (Swedish, Holmberg 1999, p. 17)

(62)a. Ég skilaði manninum ekki bókinni
I returned man.the.DAT not book.the.QDAT
I did not return the book to the man.

b. *Ég skilaði bókinni ekki manninum
I returned book.the.QDAT not man.the.DAT
I did not return the book to the man.

However, like the particle cases, here again object shift patterns with analytic passive (and unlike *wh*-movement, see (52)) when cross-Scandinavian variation is taken into account. In both Icelandic and Danish,

object has features forcing movement beyond the object shift position, the position of the particle is no longer relevant, thus *wh*-movement proceeds regardless of the object-particle orders (see Chomsky 2001, p. 29, hence (52a) is fine even though it crosses the particle). On Chomsky's system, the (incorrect) expectation is that passive will behave like *wh*-movement in not caring about the particle, rather than like object shift.

[38] These facts are of course only relevant if one believes that the shifted position of the accusative object [Spec,AgrO-P] is higher than at least some low position of the indirect object [Spec,Agr-IO-P]. It is not immediately clear that this 'leapfrogging' structure is correct [similar questions arise with the interaction of subject and object positions]. In Bobaljik (1995b, ch. 3), I argue against the leapfrogging structure, proposing instead a 'stacked' VP structure in which the shifted position of the direct object is lower than the base position of the indirect object – which is in turn lower than the base position of the subject. See Sportiche (1992), Travis (1991) and Koizumi (1995) for similar views, and Jonas (1996) for some challenging data. I lay aside this issue here, assuming for the purposes of discussion that object shift across a dative is in principle not excluded by phrase structure considerations alone – see Collins and Thráinsson (1996).

the goal, but not the theme, can raise to subject in analytic passives in these constructions, thus again we find the same environments blocking both object shift and passive (of the theme).[39]

(63)a. Henni var skilað peningunum.
she was returned money.the.QDAT
(lit.) She was returned the money.

b. *Peningunum var skilað Jóni.
money.the.QDAT was returned Jon
The money was returned to Jon.
(Icelandic, Holmberg 1991, p. 149)

(64)a. Jens blev givet bogen.
J. became given book.the
Jens was given the book.

b. *Bogen blev givet Jens
book.the became given J.
Jens was given the book.
(Danish, Holmberg and Platzack 1995, p. 215)

Once again, an account of (63)–(64) in terms of locality of A-movement (see Holmberg 1991; McGinnis 1998) could in principle also account for (61) and (62), but the account of (61) and (62) in Holmberg's terms of adjacency (between the base and shifted positions of the object) for principled reasons cannot be extended to cover the ungrammaticality of (63b) and (64b). And as was the case with the particle constructions, language internal considerations can again be brought to bear in favour of the A-movement account. The pattern in (62) is not representative of all ditransitive verbs in Icelandic. As discussed by Zaenen et al. (1985), one class of ditransitive verbs (which includes the verb *gefa* 'to give') allows the surface order theme-goal (65a), the so-called 'inversion' order. As noted by Rögnvaldsson (1982), Zaenen et al. (1985), Holmberg (1991),

[39] The facts are more complex in that passivization of the theme is possible in Norwegian, and reported to be 'marginally possible' in Swedish (Holmberg and Platzack 1995, p. 215). I have no insights to add here.

Collins and Thráinsson (1996), exactly this class of verbs also allows passivization (65b) and object shift (65c) of the theme:

(65)a. Ég hafði gefið ambáttina$_i$ konungi sínum$_i$.
I had given maidservant.the.ACC king.DAT REFL.DAT
I gave the maidservant to her king.
(Icelandic, Collins and Thráinsson 1996, p. 418)

b. Bækurnar voru gefnar t_i Jóni.
books.the were given J.DAT
The books were given to Jon.
(Icelandic, Holmberg and Platzack 1995, p. 215)

c. Ég gaf ambáttina$_i$ ekki t_i konunginum.
I gave maidservant.the.ACC not king.DAT
I did not give the maidservant to the king.
(Icelandic, Collins and Thráinsson 1996, p. 415)

The particle construction and the double-object construction in Scandinavian have been topics of discussion in the generative literature for more than a decade. Importantly, there are correlations to be made within this realm of data. In those varieties of Scandinavian languages (or for those constructions within a given variety) in which the direct object cannot cross the participle, (analytic) passive is also blocked. Likewise, where the theme cannot precede a goal, the theme is also typically blocked from passivization (though see fn. 39). For each, the converse holds as well. These two-way correlations suggest that the proper account will be one in terms of locality conditions on A-movement, a direction pursued e.g., in Holmberg (1991) and in more recent terms, in McGinnis (1998). That this is A-movement and not an adjacency requirement holding between the base and shifted position of the moved element (as put forth in Holmberg 1999) is shown by the passive examples. If the ungrammaticality of (48a) and (49) is to be accounted for in terms of this PF-adjacency, then the ungrammaticality of these examples cannot be related to the ungrammaticality of the corresponding passives and the generalizations discussed here cannot be captured. For these reasons, despite the initial appeal of Holmberg's proposal to extend the scope of HG, I am led to reject his account – and Chosmky's reformulation of it – and in particular, to assume that the proper generalization is the one that relates object shift to verb movement. This removes the major empirical challenge to the adjacency account I have developed.

3.7. *Interim Summary*

In the preceding six sections, I have provided an account of HG effects, relating them to *do*-support in English, in the sense that both are responses to a disruption of adjacency between an inflectional affix in Infl and an unmoved verb stem. The disruption is significant only at the post-syntactic level where merger applies (e.g., Morphology, understood as the mapping to the PF-interface). This analysis correctly predicts not only the range of cases where the HG effects obtain, but also correctly predicts the absence of such effects in verb-final languages. In presenting the account, I have digressed at a number of points to justify assumptions and to consider plausible alternatives that have arisen in recent work. For each such alternative, I have shown where it fails to account for the data discussed here, or, as in the case of Holmberg (1999), why I believe the empirical generalization on which it is based to be incorrect. In responding to the alternatives, I hope to have shown that the empirical content of the generalizations presented above is valid: the HG effect is ultimately morphophonological in nature.

Having established this, there is only one possibility that I see for developing an account of HG that is not only empirically adequate but also avoids invoking PF-filters on syntactic derivations (as done in Bobaljik 1994a, 1995b, chs. 1–2). This is to approach the phenomenon of movement as involving the establishment of a chain in syntax, but leaving the resolution of the pronunciation of this chain (i.e., in its higher or lower position) as a morphophonological, PF-interface matter. It is clear that in most instances, the standard characterization of the overt *versus* covert distinction (i.e., as pre- and post-Spell Out) may be freely intertranslated into the copy + delete terms. I have shown here one instance where that is not the case, and where the evidence is in favour of the latter. It remains to be fully explored to what degree this holds true of all cases of movement. One intriguing indication that the copy + delete analysis extends to QR as well is offered by Fox and Nissenbaum's (1999) analysis of extraposition in English, to which I refer the reader (see also Fox, to appear).

Despite the fact that it is difficult to come up with empirical cases that will tease the different models apart, there are clear ways in which they differ and thus the problem is statable. For example, the model developed here takes all movement to occur in a single component; there should be no differences between the syntactic aspects of 'LF' and 'PF' movement. Any difference between constructions in which a higher copy is pronounced and those in which a lower copy is pronounced should therefore be attributable to properties of the PF-interface, as in the account above. This is a tall order, and one of the clear challenges is subjacency. If subjacency is truly a

locality effect on 'overt' movement that 'covert' movement does not obey (Huang 1982), then the system developed here is inadequate (or incomplete). However, the empirical basis for the conclusion that subjacency constrains only covert movement has been frequently challenged (see, among others, Watanabe 1992 on *wh-in-situ*, Reinhart 1997 on Quantifier Raising). To my understanding, the question remains open.

It may be noted in passing that the copy + delete theory and the Move + PF filter theory differ in the range of possible answers they may give to the question of why English and the Scandinavian languages have different responses to disruptions of adjacency. On the copy + delete theory, we may tell an economy story along the following lines, reducing the question in part to a different unsolved issue: the question of why some languages have object shift and others not. If the inflection of the finite verb in V° takes place as a morphophonological operation (merger), then one must ask whether or not there is covert raising of the verb (now understood as pronunciation of the bottom copy of a moved verb). In Bobaljik (1995a, ch. 5) and Bobaljik and Thráinsson (1998), it is argued that there is no covert raising of verbs in such cases, that the failure to raise overtly is a direct consequence of the verbs' being able to check all necessary syntactic features *in situ*. Consider in this light the representation in (36b), repeated here.

(36)b. … [$_{CP}$ att [$_{IP}$ de [$_{[+past]}$ -te] [~~den~~ [$_{VP}$ [$_{V}$ läs-] **den**]]]]

Merger: O - - - - - - - - - - - - - O

Being an embedded clause, the main verb remains in VP throughout the derivation. By hypothesis, object shift applies in the syntax creating a chain consisting of two copies of the object, one to the left of the VP and the other VP-internal. Two things must happen in any event: (i) the verb and inflectional affix must come together, and (ii) one copy of the object must be deleted. Note that it is possible to simultaneously satisfy both requirements, namely, by deleting the higher copy of the object and pronouncing the lower one. It would also be possible to insert a dummy auxiliary to support the stranded affix, allowing pronunciation of the higher object, but it is possible to see this option as involving an extra step and thus being more costly, in terms of the theory of economy (Chomsky 1991 et seq.).

Consider now an English clause where *do*-support is triggered, such as (17), repeated here.

(17)a. [$_{IP}$ Sam [$_{I^\circ}$ -s] not [$_{VP}$ eat- ham]].

b. O- - - ∗ - - - - - - O ← Adjacency Disrupted

c. ∅→ *do* ← *do*-insertion

If the verb has not raised, choice of copy is not an issue. Similarly, there is no reason to posit a lower (or higher) copy of negation that could be pronounced, allowing deletion of the offending *not*. Here, no combination of pronunciation of copies will permit merger to apply successfully, and the putative economy consideration hinted at in the previous paragraph could not apply. Insertion of a pleonastic verb to support the inflectional affix is the only option. This story leaves a good deal to the imagination.[40] Nevertheless, it leaves open a fairly clear possibility for developing an economy account of this difference between Scandinavian and English.

One final consequence of the approach outlined here is that, all else being equal, the typology of movement operations presented in (3) is predicted. Of particular interest is the predicted existence of 'Lower Right Corner' (LRC) effects (3d) – syntactic movement, with LF and PF privileging of the lower copy. It is to a demonstration of the existence of these effects that I now turn.

4. The Lower Right Corner

In the previous section, I presented a theory of movement that takes the output of syntax to be a representation in which a given element may occupy more than one position (i.e., may have copies in more than one position). The distribution of what we call 'movement', then, is a combination of two decisions, namely, the choice of which copy to privilege at LF (= interpret for scope and binding purposes) and which to privilege at PF (= pronounce). Covert movement refers (now somewhat anachronistically) to the two cases in which there is a mismatch between these choices: if LF privileges the lower position and PF the higher, we have an instance of what was previously called reconstruction (as analyzed by Chomsky 1993; Hornstein 1995); if LF privileges the higher position and PF the lower, we have an instance of LF raising. Neither of course involves any actual

[40] For one thing, it is tricky to reconcile the proposal here with certain technical specifics of Bobaljik and Thráinsson (1998); for another, Bobaljik and Thráinsson have no account of why there should be Aux inversion (I → C movement) in English questions, though there clearly is such movement, and this underlies the account of *do*-support in non-subject questions. I leave the matter for further research.

movement after Spell-Out. True overt movement (e.g., raising, without reconstruction) is the result of privileging the same (higher) copy at both LF and PF. But what of the final option, privileging the lower copy of a syntactically moved element at both PF and LF – the Lower Right Corner?

In one sense, this would be hard to distinguish from non-movement. The element in question would have to be pronounced in its lower position and at the same time show no LF-evidence for raising (i.e., it would be interpreted for scope and binding purposes in its surface position). There would have to be evidence for syntactic movement that comes from neither of the interfaces directly and would thus be the reflex of purely formal, syntactic operations. The obvious candidate for such an operation is feature-checking, as diagnosed by agreement. Space permits examination of one well-studied construction which is a candidate for the LRC configuration; see also Bobaljik (1999b).

4.1. *Expletive Insertion Yet Again*

A major reason for the interest in expletive *there*-insertion constructions in English (and their counterparts in other languages) in recent years concerns the relation between the associate (the logical subject) and the finite verb, which shows agreement with the associate. This is illustrated in (66).[41]

(66)a. There are/*is three unicorns in this garden.

b. There seem(*s) to be some unicorns in the garden.

c. There have/*has arrived many ships from Mauritania.

Chomsky (1986, et seq.) has analyzed these constructions in terms of LF-raising of the associate to the matrix subject position (the position occupied by *there* on the surface). In addition to the agreement phenomena, the argument was based on the observation that the locality conditions on such apparent long-distance agreement are the same as those obeyed by A-movement.

[41] There is, of course, a good deal of variation in English regarding agreement in this type of construction (and indeed regarding the acceptability of the construction with verbs other than *be*). Many dialects/idiolects allow or require singular agreement with plural associates in certain environments (see Waller 1997; Sobin 1997; Den Dikken 2001), and the contracted auxiliary is difficult to reliably distinguish from the apparent fixed form *there's*. While interesting, such variation is ultimately neither here nor there for present purposes. It is clear that there are dialects for which the facts in (66) are robust and, for these dialects, the explanation given in the paper is appropriate. (Recall that the aim here is to show that LRC effects exist.) Furthermore, no such variation is attested in languages such as Icelandic or German – agreement is obligatory in expletive insertion contexts.

It was soon recognized that the LF-raising analysis faced a potential embarrassment (apparently noted first by Lori Davis, and discussed in Den Dikken 1995 and Hornstein 1999): for all tests taken to diagnose the LF-position of a given element, the associate behaves as if it is in the lower (i.e., its surface) position. I illustrate with den Dikken's examples of reciprocal and variable binding, though the results extend systematically throughout the gamut of LF-position diagnostics.[42]

(67)a. Some applicants$_i$ seem to each other$_i$ to be eligible for the job.

b. *There seem to each other$_i$ to be some applicants$_i$ eligible for job.

c. Someone$_i$ seems to his$_i$ mother to be eligible for the job.

d. *There seems to his$_i$ mother to be someone$_i$ eligible for job.

(Den Dikken 1995, pp. 348–49)

This is, of course, exactly the state of affairs which fits neatly under the rubric of LRC effects. The agreement relation, and importantly the fact that the locality conditions on this relationship (i.e., those typical of A-chains), indicate that the associate has undergone syntactic movement to the (matrix) subject position. However, for both PF and LF *qua* scope/binding/mapping, the associate behaves as if it is in the lower position. If analysed correctly here, expletive constructions are thus an elegant example of the expected lower-right corner effects.

Note that this treatment takes expletive *there* to be inserted in the phonology, much in the spirit of the *do*-support analysis in section 3.2 and other 'support' analyses in the literature and differs from approaches in which the expletive is inserted in the syntax – both those taking the expletive to be inserted in Spec,IP and those positing syntactic raising of the expletive. The logic of the argument suggests that the EPP be taken in effect to be a PF-phenomenon. Consider in this light languages like German and Icelandic, both of which have well-studied expletive constructions, in many respects parallel to the English construction (see Bobaljik and Jonas 1996; Vikner 1995 and references therein for discussion of the similarities and differences). These are illustrated in (68a) from Icelandic and (b-c) from German. (The subject is VP-internal in the Icelandic example; for arguments that the subject is low, perhaps in Spec,TP in the German examples, see Diesing 1992a; Bobaljik and Jonas 1996.)

[42] There is exactly one possible exception, namely the control facts discussed by Cardinaletti (1997). See section 4.3.2, below.

(68)a. Það hafa verið nokkrir kettir í eldhúsinu (Icelandic)
EXPL have been some cats in kitchen-the
There have been some cats in the kitchen. (Vangsnes 1998, p. 6 (7e))

b. Es haben ja doch Linguisten Kammermusik gespielt
EXPL have indeed linguists chamber music played
Linguists have indeed played chamber music.
(existential subject)

c. Es hat ja doch ein Junge den Zaun gestrichen (German)
EXPL has indeed a boy the fence painted
A boy has indeed painted the fence.

Safir (1985, pp. 245ff), Travis (1984, ch. 4), and Vikner (1995, p. 185), among others, note that an overt expletive is possible in such constructions only when the expletive is clause-initial, i.e., occupies Spec,CP. When some other element occupies this position, as in V2 constructions with an overt topic, (69a–b), or in embedded clauses (69c), an overt expletive is ungrammatical although the subject remains in the low position (i.e., to the right of the participle or sentential adverb, cf. Diesing 1992a; Bobaljik and Jonas 1996).

(69)a. Í dag hafa (*það) verið nokkrir kettir í eldhúsinu
*today have (*EXPL) been some cats in kitchen-the*
(Icelandic)
Today, there have been some cats in the kitchen.
(Vangsnes 1998, p. 7 (8e))

b. Gestern haben (*es) ja doch Linguisten Kammermusik gespielt
*yesterday have (*EXPL) indeed linguists chamber music played*
Yesterday, linguists have indeed played chamber music.
(existential subject)

c. ... daß (*es) ja doch ein Junge den Zaun gestrichen hat
... *that (*EXPL) indeed a boy the fence painted has*
(German)

... that a boy has indeed painted the fence.

The analysis offered by Safir, Travis, Vikner, and others is that the constructions in (69) involve a null expletive in Spec,IP (or Spec,AgrSP). On the analysis offered here, the examples in (69) have no expletive, these having no syntactic role, but being instead inserted (at PF) only to fill some phonological requirement having to do with the left edge of the clause, be it Spec,IP (as in English), or Spec,CP (as in German and Icelandic) (for a related proposal on clausal 'left-edge' effects at PF, see Pesetsky 1998). The analysis of both (68a) and (69a) is that the subject is pronounced and interpreted in the lowest position, though it has moved to Spec,IP in order to check features and trigger agreement on the auxiliary. Whether an expletive is subsequently inserted (as in (68a)) or not (as in (69a)) is a matter for the (morpho-)phonology to decide.[43,44]

4.2. *Expletive Insertion, Economy, and Optionality*

To this point, I have been attempting to motivate a framework for thinking about movement in a slightly different manner than is standard. Particular emphasis has been given to the idea that what we call movement is really a PF-interface effect: the choice to pronounce the top or bottom copy in a chain. The primary argument comes from a case where the topmost copy cannot be pronounced, and I have investigated the consequences of this. I have, however, only hinted (see, e.g., fn. 24) at the outlines of a component of this theory that is unquestionably necessary for a complete analysis, and that is an answer to the question: when HG is not at issue, what decides which copy will be pronounced? In Bobaljik (1995b), this question was left hanging, with two directions to pursue offered. In this paper, and in particular in the context of *there*-insertion discussed in the preceding section,

[43] Note in this context that expletives themselves do not trigger a definiteness effect, as is especially clear in German and Icelandic (see Vangsnes (1998) for a careful study of the range of possible associates in expletive constructions in Icelandic). Any analysis in which the definiteness effect and the appearance of an expletive are intimately connected thus fails on empirical grounds.

[44] Expletives in English may appear in the embedded subject position in ECM constructions: *I believed there to be someone in the room*. Here, the analysis must be that movement of *someone* occurs not in order to trigger subject agreement (the embedded clause being infinitive) but rather in order to be case-licensed by the ECM verb.

I believe there is a unique answer to be defended, namely, an economy condition which prefers isomorphism between PF and LF. In Bobaljik (1994a), this was presented as *Minimize Mismatch*, and is essentially the same as Diesing's (1997) Scope Principle:

(70) *Minimize Mismatch*
(To the extent possible) privilege the same copy at PF and LF.

On this view, the economical cases are those in which PF and LF privilege the same copy, i.e., (3a) and (3d) (the Lower Right Corner). Following the general logic of economy, one consequence of (70) is that covert movement (whether raising or reconstruction) must be forced by other considerations. This is exactly what we saw in the case of the HG effect – when adjacency is not at issue, an object representing old information (occupying the VP-external object position at LF, by the Mapping Hypothesis (Diesing 1992b) or some equivalent) is obligatorily pronounced in the higher position; pronunciation in the lower position yields an interpretation of new information. It is only when pronunciation in the higher position is impossible (by HG) that pronunciation in the lower position may be consistent with LF-interpretation in the high position. Objects in Icelandic representing new information never shift, but here no issue arises, as pronunciation in the high position would be an unforced violation of (70).[45]

Consider in this light the range of possibilities for a structure involving an indefinite subject in a raising construction in English:

(71) [Someone from New York] seems to be [someone from New York] at the party.

It is well known that the NP in a raising construction may be pronounced in either position, with *there*-inserted in the matrix Spec,IP if the lowest instance of the DP is pronounced.

(72)a. [Someone from New York] seems to be at the party.

a. There seems to be [someone from New York] at the party.

It is also established (see references in section 2) that when the top copy is pronounced (72a), either copy may be interpreted at LF (in more familiar

[45] This approach sheds no new light on the question of why only pronouns may shift in the Scandinavian languages other than Icelandic. See Bobaljik and Thráinsson (1998) for one theory.

terms, reconstruction is possible, but not obligatory). However, it is equally well established that when the bottom copy is pronounced, interpretation is restricted to the lower copy: (72b) cannot have an interpretation in which the indefinite DP scopes over *seems* (or, more convincingly, over any scope-bearing elements in the matrix clause; see section 4.1). Of the four logical combinations for PF and LF privileging, only three are attested. Why?

Minimize Mismatch provides an answer. English, as noted above, has a requirement (which we take to be a PF requirement) that there be phonological material in the specifier preceding Infl – the EPP. Now, when the wide-scope interpretation for the indefinite is intended, pronunciation of the top copy (yielding (72a)) satisfies both the EPP and Minimize Mismatch. But when the narrow scope reading of the indefinite is intended, a problem arises. Pronunciation of the lower copy satisfies (70), but violates the EPP; an otherwise superfluous element (the expletive *there*) must be inserted, yielding (72b). Alternatively, the top copy may be pronounced, satisfying the EPP, but violating Minimize Mismatch – (72a) with 'reconstruction'. Assuming some notion of Last Resort makes expletive insertion 'costly', neither solution is truly optimal, nor is one 'more costly than the other.[46] The result is the attested optionality of *there*-insertion in this context.

Turning to the excluded possibility, i.e., that of a wide-scope reading for the indefinite (over *seems*) in (72b), we see that this violates both Last Resort (with the insertion of *there*) and (70). Moreover, there is a perfectly good alternative that violates neither and thus is more economical. On this view, then, the notion of economy encoded in (70) yields the facts – 'overt movement without reconstruction' is possible; a narrow scope interpretation for an indefinite may be expressed either via movement + reconstruction or via a *there*- insertion configuration; and failure to raise 'overtly cannot correspond to a wide-scope interpretation for the indefinite.[47]

[46] Note that this view requires that constraints not be ranked relative to one another, as in OT approaches to economy-like considerations.

[47] It seems that this approach should shed light on the correlation between the impossibility of reconstruction for universals (as in (i)) and the impossibility of universals in expletive constructions (ii).

(i) Everyone seems [not to be here yet]. * $\neg > \forall$.

(ii) *There seems to be everyone here.

If we could understand why universals must take scope in the higher position in (i), *Minimize Mismatch* would predict (ii). Note, though, that this does not carry over to negative

The emergent generalization is this: when PF does not conspire to prevent pronunciation in one position, then pronunciation and interpretation are strongly correlated. Pronunciation in the lower position does not in and of itself force a VP-internal interpretation (as in the HG contexts), but it does do so exactly when there was an alternative. Failure to shift, as it were, when shift would have been possible, has interpretive consequences, just as shift itself does. This may be a recurrent theme in the study of language (one can read this into Jakobson's discussions of markedness, for example, Jakobson 1932/1984), though I leave exploration of the matter as beyond the scope of this paper.

4.3. *Going Further – Potential Avenues of Support*

The arguments here could in principle be strengthened in two ways. First, if it can be shown that agreement systematically obeys the same locality conditions as A-movement, an argument can be made for collapsing the two. Second, if it can be shown that there are other phenomena, besides agreement, which point to purely syntactic movement (i.e., independent of LF and PF positions), evidence from that domain can be brought to bear on the questions. There is suggestive initial evidence for both of these positions, though in the case of the second many of the relevant examples are murky and the requisite assumptions suspect.

4.3.1. *Long-Distance Agreement*

As noted, the argument that expletive-associate constructions involve a kind of covert movement of the associate derives from the observation that the associate, though not visibly in the subject position, triggers agreement as if it were in that position. Important to this reasoning is the observation that the configurations which permit expletive-associate relations, and the concomitant long-distance agreement, are exactly those which permit A-movement, e.g., Raising or Passive. The logical conclusion is that agreement reflects the existence of a syntactic chain, i.e., syntactic movement in our terms. One must at this point ask to what degree this is a quirk of the constructions under investigation, or to what degree this is a systematic aspect of (long-distance) agreement. The most interesting arguments

quantifiers, which also resist reconstruction in raising configurations but are felicitous in *there*-insertion contexts.

(i) No one is certain to solve the problem. ≠ It is certain that no one will solve the problem. (Lasnik 1999)

(ii) There seems to be no one in the garden

are likely to come from long-distance object agreement in languages with overt morphological object agreement.

A cursory examination of relevant data suggests that long-distance object agreement obeys the same locality conditions as long-distance A-movement of objects, at least cross-linguistically.[48] Examples of the latter include Super-Passive (a) and long-distance unaccusative movement (b) in German.

(73) **Long object movement**

a. weil [der Lastwagen und der Traktor] zu reparieren
since [*the truck and the tractor*]-*NOM to repair*
versucht wurden/*wurde
tried(PASS) AUX.PL/AUX.SG
since somebody tried to repair the truck and the tractor

b. ? weil mir [die Briefe]$_i$ auf Anhieb t_i zu entziffern
since me-DAT [*the letters*]-*NOM straightaway t to decipher*
gelungen sind
managed are
since I managed to decipher the letters
(German, Wurmbrand 1998, p. 24)

In the first example, passive has applied only in the higher clause (*versucht wurden* 'tried were') and in the second example only the higher verb (*gelungen* 'managed') is unaccusative. (German being verb-final in embedded clauses, the verbs at the end of the clauses are in their inverse hierarchical order.) In both cases, the most deeply embedded verb is in its (active, transitive) infinitive form. However, both case and agreement facts indicate that the embedded object has raised to the higher subject position – the determiners in (a) show nominative case and the finite auxiliaries are obligatorily plural. Long A-movement of this sort is one of the typical 'restructuring' phenomena associated with a limited class of predicates across a range of languages (see Wurmbrand 1998, 2001b, for an overview and account). Non-restructuring predicates (such as *planen* 'to plan') do not allow such long A-movement.

[48] Though see Polinsky and Potsdam (2001) for a recent challenge.

(74) * weil [der Lastwagen und der Traktor] zu reparieren
since [*the truck and the tractor*]*-NOM to repair*
geplant wurden/wurde
planned were/was
since somebody planned to repair the truck and the tractor
(Wurmbrand 1998, p. 120)

By and large, the class of verbs which permit (or require) long-distance object agreement is the same as the class permitting long A-movement of objects, namely the modal and restructuring verbs. Examples are given from Itelmen (indigenous to the Kamchatka peninsula, Russia) and Inuktitut (indigenous to the North American Arctic) below.[49]

(75)a. kma kẓa t'-utu-ẓ-in
I *you* *1SG.SUBJ-unable-PRES-2SG.OBJ*
əlčqu-aɬ-iɬ.
see-FUTURE-NON.FIN
I am unable to see you.
(Itelmen, field notes (1996) S3:19 (77a))

b. ikaju-rasuk-ta-git.
help-try-MOOD-1SG.SUBJ:2SG.OBJ
I try to help you. ((Baffin Is.) Inuktitut, Mallon 1991, p. 143)

In these examples, agreement morphology on the matrix or outermost verb (Itelmen *-utu-* 'be unable to', Inuktitut *-rasuk-* 'try') reflects the object of the embedded verb, apparently thus across a 'clause' boundary. While there is no particular reason to believe that the affixal nature of the higher verb in Inuktitut complicates matters,[50] the Itelmen case is perhaps all the more convincing in that it involves independent words. The higher predicate *-utu-* 'be unable' shows transitive agreement, with the prefix referencing the subject, and the suffix referencing the embedded object.[51]

[49] The Itelmen example is transcribed broadly phonemically, the Inuktitut example uses the standard Latin transliteration.

[50] Thus, Wurmbrand (1998) demonstrates quite clearly that Japanese affixal verbs have certain restructuring properties, including allowing embedded objects to be assigned (nominative) case from the matrix predicate. Li (1990, p. 404) conjectures that affixal verbs are cross-linguistically limited to those verbs which can take VP complements, such as causatives, modals, and (on Wurmbrand 1998's analysis) restructuring predicates.

[51] Word order is unenlightening here, as the ordering of major constituents is extremely free.

Again, it would appear that the range of verbs allowing long-distance object agreement is limited to those verbs which are typical restructuring verbs, including modals. A definitive statement to this effect awaits further investigation. To the extent this turns out to be correct, however, it finds a natural explanation if agreement and (A-)movement are indeed two sides of the same coin, as maintained above.

4.3.2. *Agreement and Control*

A further piece of the picture may be provided by observations in Cardinaletti (1997), discussed also in Chomsky (1995, pp. 274f). Cardinaletti argues, on the basis of examples like those in (76) and others from a range of languages, that the apparent ability to control from an associate into a VP adjunct correlates directly with whether the associate triggers agreement.

(76)a. There have/*has entered two men without identifying themselves.

b. Es sind gestern viele Leute angekommen, ohne sich
EXPL are yesterday many people arrived, without selves
ausgewiesen zu haben. [German]
identified to have

c.*?Il est entré trois hommes sans s'excuser. [French]
EXPL is entered three men without self-excuse

While the examples are apparently quite clear in German, and clear in French for those speakers who admit the expletive construction in the first place, the situation in English is far from clear (for example, both Lasnik (1996) and Hornstein (1997) challenge the English data). For purposes of discussion, let us entertain the position that the generalization may be substantiated, and counter-examples explained away. Recall that expletive constructions were our prime example of LRC effects, since there is ample evidence that the associate behaves for LF tests as if it is in the lower position. Note in particular that the associate cannot serve as an antecedent for a reciprocal or bound variable from the higher position (67). How then might it be able to serve as an antecedent for PRO? The answer would have to be that the associate itself does not control out of the higher position, but that control is rather a relationship among functional elements, e.g., Agr or T heads, as suggested by Borer (1989), and explored in detail in Landau (2000). Again, the motivation for this rests on some exceedingly

murky data in English, and involves a promissory note rather than a theory of control phenomena. I have included the discussion for its potential relevance, and leave the topic at this point.

5. COPIES *Versus* FEATURES

The topics touched upon in this paper have been the subject of no little amount of attention in the recent literature. It is therefore difficult to do justice within the finite space of this article to the many questions that have arisen. Before closing, however, I would like to touch briefly on two alternatives, showing how exactly they differ from the approach advocated here, and speculating on the kinds of data that might be brought to bear on distinguishing them.

In Chomsky (1995, pp. 261ff), it is suggested that chains are defined not by movement of lexical items (and more complex constituents), but rather by the movement of (bundles of) 'formal features' (his "FF(LI)" for "formal features of a lexical item"). Thus Move-α is replaced with Move-F.[52] For Chomsky, all relations involve feature movement, with the overt/covert distinction now recast as a matter of 'pied-piping' of the phonological features (or not). In a case of covert raising (such as the expletive associate construction in (66b), repeated here), the formal features alone of the DP [some unicorns] raise to the matrix subject position, triggering agreement. In the case of (77), the same feature movement has occurred, but is accompanied by 'generalized pied-piping' of the phonological and other features constitutive of the DP (Chomsky's "extra baggage"). The scope/binding etc. properties follow from the assumption that the phonological and referential (scope and binding) features do not need to move as a unit.

(66)b. There seem(*s) to be some unicorns in the garden.

(77) Some unicorns seem to be in the garden.

Where Chomsky's Move-F approach differs from the copy-and-delete theory advocated here lies in where the determination of which copy to

[52] See Pesetsky (2000) for a further development of the Move-F framework; Pesetsky suggests that Move-F exists alongside the more familiar covert phrasal movement, mirroring more closely the view outlined here whereby a phrase may 'move' in the syntax, receive phonological instantiation in the position of the lower copy, but in principle be interpreted in either position at LF. A direct comparison of Pesetsky's results with those reported here must await further research.

pronounce occurs. For Chomsky, the movement of anything beyond the formal features is, for the time being, driven by the need to satisfy a PF-filter (this is given up in Chomsky 2000, see below). Thus: "Isolated features and other scattered parts of words may not be subject to [the phonological component's] rules, in which case the derivation is cancelled; or the derivation might proceed to PF with elements that are 'unpronounceable', violating [Full Interpretation]" (pp. 262–263). Note that despite its PF-motivations, the movement is still syntactic. It is in this that the two are not notational variants. In addition to the issue of modularity, and the abandonment of filters in the model advocated here, Chomsky's theory in essence predicts no mismatch between LF and PF privileged copies – (3b–c) should not exist. If LF-related and PF-related features move as a bundle, then non-overt scope is not predicted. Alternatively, if the features may move independently of one another (as in the theory put forth here), the fact that scope and pronunciation sometimes correlate is left, within Chomsky's system, as an accident. The present theory takes the syntax to operate blind to its consequences at PF, with PF then providing the best possible interpretation to the structure it receives from syntax. Chomsky (1995) takes the syntax to operate with a constant eye to what will happen at PF.

In Chomsky (2000, p. 37, fn. 76) the commitment to the PF-filter model is abandoned. Move-F is given up (p. 34) and replaced with the mechanism *Agree*: a relationship (for all intents a chain) is established between two elements which need to check features with one another (*probe* and *goal* in Chomsky's terms). Chains in the syntax need not be created by movement *per se*, but the relation they represent may simply be established between two sufficiently local elements (conditioned by the needs of feature checking). In an example like (66b), Infl (T) simply agrees with the subject 'associate' *in situ*. While Chomsky's (2000) position has thus come closer to that espoused here (cf. Bobaljik 1995b), there remains a significant difference regarding the treatment of overt movement, as in (77). In the approach developed here the two examples in (66b) and (77) have the same syntax, but differ as to choices made at the PF and LF interfaces regarding the privileging of one copy over another. A relationship (read 'chain') is established between (the specifier of) Infl and the base position of the subject. What (66b) and (77) indicate is that this chain may receive phonetic content in either of the two positions – a PF choice. By contrast, Chomsky still maintains that the example with overt displacement in (77) involves movement of the DP in the syntax. In this particular case, Infl is assumed to have not only a feature which must check against the associate, but Infl (or the feature driving Agree) also has an 'EPP-feature'

which requires 'second merge' – the movement of the entire subject DP in the syntax to Spec,IP. The distinctions are undeniably subtle, but I believe the arguments developed in this paper suggest that the choice of where to pronounce in the object shift cases is determined at the PF interface and not by a feature in the syntax. To the extent that the characterization I have offered is correct, the data support the copy-and-delete theory over the Move-F/EPP theory.

6. CONCLUSION

In the preceding pages, I have developed an account of the empirical generalization known as Holmberg's Generalization, which states that short, leftwards movement of an object pronoun or DP out of the VP ('object shift') is dependent on verb raising out of that VP. In developing the account, I have addressed three challenges to the validity of the generalization or alternative accounts and shown them to be inadequate. Zwart (1994) challenged the existence of the phenomenon and suggested that both verb raising and object shift do occur in compound tenses in Icelandic, but that the relevant movements happen in a series of quite low functional projections. His analysis was seen to incorrectly predict an isomorphism between main clause environments and embedded clauses, *modulo* choice of adverbs, and relatedly, to have no means to account for adjacency effects which are truly VP-internal. Williams (1998) (discussed briefly in footnote 27) argued that the generalization follows from directionality conditions on θ-assignment, a proposal which fails to extend to ECM and small clause constructions. Finally, Holmberg (1999) and Chomsky (2001) attempt to relate the verb movement effect to other phenomena which, I have argued, are themselves part of broader generalizations having to do with locality of A-movement. In terms of its empirical coverage, the account presented here is thus superior to the alternatives.

I have shown that the characterization of HG effects, and importantly the lack of parallel effects in the OV languages, follows from a theory of inflection of *in-situ* verbs under PF-adjacency, in all essential respects the theory presupposed by the familiar analyses of *do*-support. HG is the result of the grammar conspiring to avoid a disruption of the adjacency relation between Infl and the verb stem, and thus to ensure that finite verbs bear inflection, even if they do not raise. This has been the major empirical focus of investigation, and the account lends itself to two (very closely related) theoretical implementations.

Adopting the standard theoretical machinery, we would have been forced to conclude that PF considerations act as a filter on syntactic de-

rivations, and thus give up the possibility of non-global evaluation. Yet, as this paper has demonstrated, there is an alternative means of encoding the generalizations above, one which avoids the potential problem of global evaluation inherent in the device of PF-filters. The alternative takes the syntax to be primarily concerned with defining chains, effectively configurations in which a single element (e.g., DP) enters into local (i.e., 'checking') relationships in more than one position. Once a chain is so defined, it is the role of the interfaces (PF and LF) to interpret the syntactic structure. At the LF-interface, one position of the chain is singled out for the purposes of scope, binding, etc. (though this need not be the position singled out for thematic relations). In parallel fashion, it has been argued here, the PF-interface similarly singles out one position in the chain, providing that position with a phonological instantiation. The positions so singled out by LF and PF need not be the same, and such mismatches properly characterize the theory of 'covert' movement operations. Moreover, since neither LF nor PF necessarily privileges the higher position, the possibility arises of an element undergoing movement (chain-formation) in the syntax, but such movement having no direct consequence on the PF or LF position of the moved element. This is what I have called the Lower Right Corner effect. In the latter part of the paper, I have argued that there are clear candidates for such an analysis well-established in the literature, illustrative among which are expletive constructions.

The assumption that PF should not filter syntactic derivations leads, when combined with the considerations above, to the alternative theory of 'movement' just sketched. For the HG effects, the visible aspect of 'movement' (what Chomsky has called the displacement property) is not a syntactic phenomenon but is rather a PF operation – the decision of what position in a chain to pronounce. For the HG effects, the decision was clearly conditioned by PF considerations. For many other cases of 'movement', it is not easy to see that there is that much difference between the position advanced here and the more standard theory. The question which needs to be asked is, do we need both? That is, are there any instances where actual overt displacement (i.e., rather than the bounds on it), is forced by conditions which are properly syntactic and not statable in PF terms. If the answer is no, then the theory advocated here may be taken as a theory of movement in general. That is, while the syntax may determine the range of positions a given element may come to occupy on the surface, the actual position it does occupy – 'movement' in the familiar sense – is not just constrained by the PF-interface, it *is* the PF-interface.

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Received 26 July 2000
Revised 17 August 2001

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