Edinburgh Research Explorer

Context-Sensitive Spell-Out

Link:
Link to publication record in Edinburgh Research Explorer

Document Version:
Publisher's PDF, also known as Version of record

Published In:
Natural Language and Linguistic Theory

PETER ACKEMA and AD NEELEMAN

CONTEXT-SENSITIVE SPELL-OUT [*]

ABSTRACT. This paper deals with a class of morphological alternations that seem to involve syntactic adjacency. More specifically, it deals with alternative realizations of syntactic terminals that occur when a particular phrase immediately follows a particular head. We argue that this type of allomorphy is not conditioned by a syntactic adjacency condition. Instead, it is found when the head and phrase in question are contained in the same prosodic phrase at the interface that connects syntax and phonology (PF). We illustrate our approach with six case studies, concerning agreement weakening in Dutch and Arabic, pronoun weakening in Middle Dutch and Celtic, and pro-drop in Old French and Arabic.

1. INTRODUCTION

Various apparently syntactic phenomena seem to be conditioned by adjacency. Perhaps the best-known example is case assignment in English. Abstracting away from details, a DP dependent on the verb for case must be adjacent to it, whereas the distribution of caseless elements, such as PP complements, is not restricted in the same way (Stowell 1981):

(1)a. John read (*slowly) the book

   b. John read (slowly) to his children

We assume that syntax deals with hierarchical rather than linear relationships, which means that linear locality conditions such as adjacency are alien to it. Hence, linear locality conditions that seem syntactic at first

---

blush must be reanalyzed in one of two ways. The first is to develop a hierarchical account that happens to have the adjacency effect as a by-product. This is essentially the approach that Chomsky (1995) adopts for the data in (1). The alternative is to analyze the adjacency requirement in terms of the phonology-syntax interface, which by its very nature deals with matters of linear order and therefore provides a natural locus for linear locality conditions.

We do not address the issue of case adjacency in this paper (see Neeleman and Weerman 1999 for a prosodic account). Instead, we show that for a range of phenomena that are apparently conditioned by syntactic adjacency, a PF approach is more attractive, both conceptually and empirically. The data we discuss involve agreement weakening under subject-verb inversion in Dutch (section 3) and Standard Arabic (section 4); object cliticization in Middle Dutch (section 5), subject cliticization in Celtic (section 6), and pro-drop in Old French (section 7) and Arabic (section 8). Before we turn to these phenomena, however, we make explicit our assumptions about the syntax-phonology mapping and discuss the kind of rules we will employ.

2. ALLOMORPHY RULES AT THE PF INTERFACE

As is well known, phonological representations are not necessarily isomorphic to syntactic representations, and phonological and syntactic primitives are members of disjoint sets. A simple example illustrating this, borrowed from Jackendoff (1997, p. 26), is given in (2). In syntax, *a big house* is a DP that consists of a determiner and a complex NP complement. In phonology, it consists of two phonological words, the first of which is formed by the determiner and the adjective. So, both constituency and labels differ.

(2)a. $[_{DP}$ a $[_{NP}$ $[_{AP}$ big] house]]

  b. $[_{\phi}$ $[_{\omega}$ a big] $[_{\omega}$ house]]

One interpretation of the different nature of syntactic and phonological representations is that syntax and phonology each constitute an autonomous generative system that creates structures governed by its own wellformedness principles.

This hypothesis in turn entails that there must be an interface, usually referred to as PF, at which syntactic representations are mapped to their phonological counterparts. We assume that the following operations take

place at this interface, in the given order. These can be seen as a series of mappings or as a derivation that connects autonomous syntactic and phonological representations.

(3)a. Linearization of syntactic terminals

b. Initial prosodic phrasing, on the basis of syntactic information

c. Application of context-sensitive allomorphy rules

d. Spell-out of terminals

The first thing that happens in the mapping from syntax to PF is the introduction of linear order. We will not discuss the principles that determine this linearization here; the only relevant observation for our concerns is the trivial one that this process is sensitive to syntactic constituency.

Next, an initial prosodic phrasing is determined. The principles responsible for this are sensitive to both syntactic constituency and linear order. The main operation is one that aligns certain syntactic boundaries with certain prosodic boundaries. The prosodic domains thus derived determine the application of the rules of allomorphy that form the topic of this paper. These rules can change the featural content of a terminal in the presence of another terminal in the same prosodic domain.

Finally, phonological material is associated with the bundles of features in the terminals. For example, English has a lexical rule that relates the feature bundle [D, 3rd person, singular, feminine, accusative] to the phonological form /her/. (Where relevant, we place phonological material between forward slashes). After spell-out, within the phonological module, the prosodic structure can be adjusted on the basis of properties of the inserted phonological material and perhaps factors like speech rate. Such adjustments can, amongst other things, be made to ensure correct weight distribution. For example, if the initial prosodic structure contains a ϕ that is not prominent enough from a phonological point of view, such a ϕ is usually joined with a preceding or following ϕ (see Nespor and Vogel 1986, pp. 172–174, for such restructuring of phonological phrases; compare also the 'wrapped' structures in Truckenbrodt 1999). Because the rules of allomorphy that we discuss operate at the PF interface, they are not be sensitive to these 'late' phonological adjustments of the prosodic structure (compare also Kaisse's 1985 model).

This view on the interface between syntax and phonology has a close affinity with the model of Distributed Morphology (see Halle and Marantz 1993 and subsequent work) and precursors of this model (like Pranka

1983). In particular, we adopt from this framework the notion of spell-out (or vocabulary insertion) and the idea that there are post-syntactic allomorphy rules that adjust the feature content of terminals in particular environments. The main difference concerns the claim that allomorphy rules can be sensitive to initial prosodic phrasing. The Morphology module in Distributed Morphology, which is where the relevant allomorphy rules operate, precedes all phonology (but see Adger 2001, where an argument is made for initial prosodic word structure as the conditioning environment for certain allomorphy rules). We will show that, as a consequence of this difference, the scope of context-sensitive allomorphy rules is extended to a class of phenomena usually dealt with in syntax.

Let us now discuss in some more detail the principles of initial prosodic phrasing and the allomorphy rules sensitive to this phrasing, starting with the former.

As noted, the initial prosodic structure is determined by alignment conditions that associate boundaries of syntactic categories with boundaries of phonological categories (see Selkirk 1986; McCarthy and Prince 1993; Truckenbrodt 1995, amongst others). In English, for example, the right edges of syntactic XPs arguably correspond to the right edges of prosodic phrases (ϕs). We can hence state the following mapping rule for this language:

(4)   Align ($\langle$right edge, XP$\rangle$, $\langle$right edge, $\phi\rangle$)

Thus, the (partial) syntactic structure in (5a) corresponds to the (partial) prosodic structure in (5b). (Here and below ϕ boundaries are indicated by braces).

(5)a.   [[A friend [of Mary's]] [showed [some pictures] [to John]]]

   b.   {A friend of Mary's} {showed some pictures} {to John}

There is language variation with respect to the direction of alignment. Some languages adhere to (4), whereas others align left edges of syntactic maximal projections with left edges of prosodic phrases. From the research on this variation a generalization has emerged: head-initial languages typically opt for right alignment and head-final languages for left alignment (see Selkirk 1986). Tokizaki (1999) gives the following lists of languages to illustrate the generalization:

(6)a. *Right-alignment in head-initial languages:*

Chimwi:ni (Kisseberth and Abasheikh 1974; Selkirk 1986), Kimatuumbi (Odden 1987), Xiamen (Chen 1987)

b. *Left-alignment in head-final languages:*

Ewe (Clements 1978), Japanese (Selkirk and Tateishi 1991), Korean (Cho 1990), Northern Kyungsang Korean (Kenstowicz and Sohn 1996), Shanghai Chinese (Selkirk and Shen 1990)

The languages we discuss in this paper are either strictly or mainly head-initial. Therefore, if the generalization is correct, they will adhere to (4), rather than display left alignment.

Although the analyses we present all rely on right alignment as in (4), it goes without saying that there are various other mapping principles that govern the association of syntactic and prosodic structures. For example, the left edge of finite CPs in English coincides with the left edge of an intonational phrase, as observed by Chomsky and Halle (1968, p. 372). Given that prosodic phrases must be properly contained in intonational phrases, the syntactic structure in (7a) is not mapped onto the prosodic structure in (7b), as one would expect on the basis of (4) alone, but rather onto (7b′) (parentheses indicate intonational phrases).

(7)a. [[John] [believes [$_{CP}$ that [Mary] [loves [Bill]]]]]

b. *({John} {believes) (that Mary} {loves Bill})

b′. ({John} {believes}) ({that Mary} {loves Bill})

Conversely, some boundaries triggered by (4) can be erased again. In particular, prosodic boundaries are erased between a modifier and a following ϕ that contains the material it modifies: in such structures, modifier and modified material form a single prosodic phrase. For instance, the earlier example in (2b) is a single prosodic phrase. This rule must operate at the PF interface, and cannot be a 'late' phonological adjustment of the type mentioned above, since its application is determined by syntactic rather than phonological factors (the modifier-modifiee relation is a syntactic one). Consequently, allomorphy rules will be sensitive to the output of this rule.

It has been argued by a number of authors that there exists a type of allomorphy that involves a change in the feature content of terminals.[1]

---

[1] Allomorphy conditioned by purely phonological features or stress will not be discussed.

In particular, features can be deleted postsyntactically but prior to spell-out. This is the essence of Bonet's (1991, 1995) rules of impoverishment. Bonet notes that such feature reduction does not take place arbitrarily, but requires a certain context (compare also Halle and Marantz's (1993) notion of 'conditioned allomorphy'). Our main hypothesis is that one type of context to which allomorphy can be sensitive is the initial prosodic domain as determined by the principles just discussed. In other words, languages may have rules of the type in (8), which state that features of a terminal contained in the same ϕ as a particular other terminal are deleted. (The order of A and B in (8) is not meant to be part of the structural description of the rule).

(8) $\{ \dots [_A F_1 F_2] \dots [_B F_1 F_3] \dots \} \rightarrow$
$\{ \dots [_A F_2] \dots [_B F_1 F_3] \dots \}$

Obviously, this will affect the phonological realization of A (the terminal whose feature content is changed) if the language has spell-out rules that crucially refer to the deleted feature:

(9)a. $[_A F_1 F_2] \rightarrow$ /a/

b. $[_A F_2] \rightarrow$ /a′/

Usually, the element A will be realized as /a/ when it bears the features F_1 and F_2, but as a result of (8) it will be realized as /a′/, the form that normally surfaces when F_1 is absent.

Let us now consider the effects that the prosodic phrasing determined by (4) has for the application of rules like (8). Consider structures in which A is a head in whose projection a phrase BP appears. If the language forms phonological phrases in accordance with (4), A and B will occur in the same prosodic phrase if BP immediately follows A. In all other contexts, A and B will not be contained in the same prosodic phrase. This means that a feature deletion rule like (8), which affects A only if B is present in the same local prosodic domain, can apply in (10) but not in (11) (where BP precedes A) or (12) (where a maximal projection intervenes between A and BP).[2]

---

[2] We need not stipulate that BP is contained in AP. If it were not, as in [AP BP], the ϕ-boundary triggered by AP's right edge will intervene between A and B. We assume that this line of argumentation extends to structures in which BP is extraposed and adjoined to AP (indeed, extraposed material forms a separate prosodic domain). What is possible, though, is that BP is a specifier or adjunct located at the left edge of the complement of

(10)a.　after linearization:　　$[_{AP} [_A F_1 F_2] [_{BP} [_B F_1 F_3]]]$

　　b.　after application of (4):　$\{[_A F_1 F_2] [_B F_1 F_3]\}$

　　c.　after application of (8):　$\{[_A F_2] [_B F_1 F_3]\}$

　　d.　after spell-out (cf. (9b)):　$\{/a'/ /b/\}$

(11)a.　after linearization:　　$[_{AP} [_{BP} [_B F_1 F_3]] [_A F_1 F_2]]$

　　b.　after application of (4):　$\{[_B F_1 F_3]\} \{[_A F_1 F_2]\}$

　　c.　(8) not applicable:　　$\{[_B F_1 F_3]\} \{[_A F_1 F_2]\}$

　　d.　after spell-out (cf. (9a)):　$\{/b/\} \{/a/\}$

(12)a.　after linearization:　　$[_{AP} [_A F_1 F_2] [_{XP} X] [_{BP} [_B F_1 F_3]]]$

　　b.　after application of (4):　$\{[_A F_1 F_2] X\} \{[_B F_1 F_3]\}$

　　c.　(8) not applicable:　　$\{[_A F_1 F_2] X\} \{[_B F_1 F_3]\}$

　　d.　after spell-out (cf. (9a)):　$\{/a/ /x/\} \{/b/\}$

By its very nature, spell-out is language-specific. Languages simply do not realize the same feature bundles in the same way. If this is true of spell-out in general, it also holds of the class of allomorphy rules under discussion. However, although the content of such rules is language-specific, there are general restrictions on their format and application.

　Concerning their format, we can distinguish two general types. The first consists of rules of the format in (8), which delete a morpho-syntactic feature.[3] We assume that such suppression of a morpho-syntactic feature is subject to a notion of recoverability: the target of the rule and the terminal mentioned in the rule's context must agree:

A; A and B will then end up in the same prosodic domain, as (i) shows. We will discuss several instantiations of this pattern.

　(i)a.　　$[_{AP} A [_{XP} BP [X \dots]]]$

　　b.　　$\{A B\} \{X \dots\}$

[3] It has been proposed by Noyer (1998) and Harbour (2001) that rules of allomorphy can also insert features. We will not discuss this option here; for the type of data under consideration it is not necessary.

(13)   *Recoverability*

Rules of suppression operate under agreement

This does not imply that each suppressed feature must be related to an unsuppressed agreeing feature, but rather that the terminal whose features are suppressed must be in a relation of agreement with a terminal whose features are not suppressed. Suppression of non-agreeing features can be parasitic on this agreement relation.

The second type of allomorphy rule states that if a particular terminal finds itself in the same prosodic domain as some other terminal, its phonological realization is altered. For example, the rule can state that a pronoun is to be realized as a simple clitic in the presence of another terminal in the same prosodic domain. Since a simple clitic forms a phonological word with its host, this type of allomorphy rule can have the form in (14), where angled brackets indicate phonological word (ω) boundaries.

(14) $\{ \dots A \dots [_B F_1 F_3] \dots \} \rightarrow \{ \dots <A \dots [_B F_1 F_3]> \dots \}$

Rules like (14) do not delete a morpho-syntactic feature in their target, and hence are not subject to the condition in (13). This means that such rules will not require that A share certain features with B. However, since *some* terminal must be present in the same ϕ as B, the rule must mention one or more features that identify this terminal. This has the effect that cliticization on the basis of rules like (14) will typically apply after a certain class of syntactic heads only.

This kind of rule, too, can lead to an alternative spell-out of a terminal, namely if the usual form of B is itself a phonological word. In that case, insertion of this form is incompatible with the output of the rule, since by the strict layer hypothesis (Selkirk 1984) prosodic structure is not recursive. There must then be a special spell-out for the clitic form in order to comply with the output of (14). Thus, the language contains two spell-out rules for B, one which realizes it as an independent phonological word (see (15a)), and one that inserts something smaller than a phonological word, for instance a syllable (σ; see (15b)).

(15)a. $[_B F_1 F_3] \rightarrow /b_\omega/$

b. $[_B F_1 F_3] \rightarrow /b_\sigma/$

The form in (15b) can only be inserted if a rule like (14) has applied, as otherwise a syllable would be directly dominated by a prosodic phrase rather than a prosodic word, again in violation of the strict layer hypothesis.

It is also possible that the language contains a specific spell-out rule for the complete phonological word derived by (14), next to spell-out rules for the individual host and pronoun. In that case, the inserted form need not resemble the normal realization of either the host or the pronoun:

(16)a. $A \rightarrow$ /a/

  b. $[_B \, F_1 \, F_3] \rightarrow$ /b/

  c. $<A \, [_B \, F_1 \, F_3]> \rightarrow$ /c/

Like the rule in (8), the one in (14) will only apply if BP, the phrase headed by B, is contained in AP and immediately follows A. Thus $[_{AP} \, A \, BP]$ is mapped onto {</a/ /b$_\sigma$/>} or {</c/>}, depending on the spell-out rules of the language. If BP precedes A or some other phrase intervenes between A and BP, A and B will not end up in the same initial prosodic phrase, and hence $[_{AP} \, BP \, A]$ and $[_{AP} \, A \, XP \, BP]$ are mapped onto {/b/} {/a/} and {/a/ /x/} {/b/}, respectively.

Our second type of allomorphy rule, as schematized in (14), resembles Pranka's (1983) notion of S-structure merger. Pranka proposes that languages may have rules that join the features of adjacent terminals at surface structure into a single node. This node can then be spelled out in a way that deviates from the phonological realization of the merged terminals in isolation. Indeed, the Irish data to be discussed in section 6 below, which we analyze in terms of a rule of the type in (14), are analyzed by Pranka in terms of merger.

Although S-structure merger and prosodic word formation at PF express essentially the same insight, we believe that the main advantage of making the rule sensitive to initial prosodic domains is that this correctly predicts in which contexts it can apply. To begin with, as just explained, it follows that the order between heads and phrases affected by the rule is not arbitrary: the phrase must follow the head. Pranka captures the data by stating a particular linear order as part of the structural description of the rule. However, it does not follow why this structural description should select head-XP order, rather than XP-head. Similarly, Pranka states as an extra condition on the application of merger that it requires adjacency between terminals at S-structure.

As explained in the introduction, PF allomorphy rules provide an alternative to syntactic adjacency conditions.[4] Interestingly, they do not always

---

[4] There are various proposals on the relation between adjacency and certain kinds of restructuring (see Halle and Marantz (1993) on morphological merger, Van Riemsdijk (1998) on V-to-V raising, Bobaljik (2002) on affix hopping and Embick and Noyer (2001)

require strict linear adjacency between the elements mentioned in the rule. Locality is an effect of prosodic domain formation and hence in principle elements can intervene as long as they do not trigger ϕ-closure. However, rules of the type in (14) form prosodic words, which means that any material that intervenes between the terminals they mention and that must form a prosodic word itself will block their application. Hence, the only material that can intervene are other clitics.

The situation is different for rules that suppress morpho-syntactic features. These do not necessarily derive prosodic words. Hence, it is predicted that the terminals that instantiate A and B in (8) can be separated as long as no ϕ-boundary intervenes. In practice, they can be separated by a modifier of B (recall that there is no prosodic phrase boundary between a modifier and following modified material) or a functional head in the extended projection of B.[5]

Let us now consider what kind of data can be accounted for in terms of this system.

3. DUTCH AGREEMENT WEAKENING

The Dutch verbal agreement paradigm has a curious property: the conjugation of the second person singular depends on the position of the agreeing verb with respect to the subject. As will be clear from the regular present tense endings in (17), the second person singular is usually marked by *-t*:

(17)   ik loop   wij loop-en
        I walk   *we walk-pl*

---

of PF movement). It would take us too far afield to discuss these here. However, we should perhaps point out that our general approach to word formation differs from Distributed Morphology in that we do not assume that inflectional or derivational affixes head syntactic projections. Rather, we believe that morphosyntactic structures are generated by a distinct morphosyntactic module. This implies that, although our approach shares much with Distributed Morphology, we reject analyses in which an affix is combined with its host either in the syntax or by postsyntactic processes. See Ackema and Neeleman (2002) for more discussion.

[5] We expect that in general lexical heads cannot intervene, despite the fact that A and B in (i) are contained in the same prosodic phrase. The point is that in many cases agreement relations cannot be established across lexical heads and consequently feature suppression in either A or B will violate the recoverability condition in (13).

(i)a.   [$_{AP}$ A [$_{LP}$ L [$_{BP}$ B]]]

   b.   {A L B}

jij   loop-t   jullie loop-en
you walk-2sg   *you   walk-pl*
hij loop-t   zij   loop-en
he walk-3sg   *they walk-pl*

Dutch has verb second in root clauses, a fact traditionally analyzed in terms of V-to-C raising in root environments followed by the fronting of an arbitrary constituent to spec-CP (see Den Besten 1983). Thus, when a constituent other than the subject is fronted, the net effect is subject-verb inversion:

(18)a. [$_{CP}$ dat [Marie vandaag naar het vioolconcert   van Sibelius
       that Mary today   to   the violin-concerto by   Sibelius
       luistert]]
       listens
       that Mary listens to the violin concerto by Sibelius today

   b. [$_{CP}$ Marie [$_{C'}$ luistert [t$_{DP}$ vandaag naar het vioolconcert   van
       Mary   listen-sg today   to   the violin-concerto by
       Sibelius t$_V$]
       Sibelius

   c. [$_{CP}$ Vandaag [$_{C'}$ luistert   [Marie t$_{AdvP}$ naar het vioolconcert
       today   listen-3sg Mary   to   the violin-concerto
       van Sibelius t$_V$]]]
       by Sibelius

Although agreement is not in general sensitive to this type of inversion, the *-t* ending that marks the second person singular is omitted in inversion structures. This results in a form homophonous to the first person singular (that is, a form without an overt ending):

(19)a. [$_{CP}$ dat [jij   dagelijks met een hondje over straat   loopt]]
       that you daily   with a doggy in   the.street walk-2sg
       that you walk with a doggy in the street every day

   b. [$_{CP}$ Jij [$_{C'}$ loopt   dagelijks met een hondje over straat t$_V$]]]
       you   walk-2sg daily   with a doggy in   the.street

   c. [$_{CP}$ Dagelijks [$_{C'}$ loop [jij t$_{AdvP}$ met een hondje over straat t$_V$]]]
       daily   walk you   with a doggy in   the.street

Although Dutch is head-final within VP, it is head-initial in most, if not all, other projections (for example, in DP, NP, PP, AP and CP). Given the generalization that head- initial languages comply with (4), Dutch will build up its initial prosodic structure by right-alignment as well. Thus, a sentence like (20a) receives an initial prosodic phrasing as in (20b), rather than (20c) (which would follow from left-alignment of prosodic and syntactic phrases).

(20)a. [$_{CP}$ dat [$_{IP}$ [$_{DP}$ Han] [$_{VP}$ [$_{PP}$ aan [$_{DP}$ een [$_{NP}$ boek [$_{PP}$ over [$_{DP}$
        that   *Han*   *on*   *a*   *book*   *about*

    Coltrane]]]]] werkt]]]
    Coltrane   *works*

    that Han works on a book about Coltrane

   b.   {dat Han} {aan een boek over Coltrane} {werkt}

   c.   *{dat} {Han} {aan} {een} {boek} {over} {Coltrane werkt}

For the most part, the structure in (20b) is uncontroversial, except that the object and the verb are initially parsed into different prosodic phrases. A right-alignment account of Dutch hence requires a post-PF adjustment rule that joins an unstressed verb with the prosodic phrase on its left (see section 2 for the notion of prosodic restructuring). A left-alignment account of Dutch, on the other hand, will have to undo almost all of the initial phrasing in (20c).

   It follows from (4) that when there is subject-verb inversion, the subject DP is realized in the same prosodic phrase as the verb. This is illustrated in (21c), the prosodic structure corresponding to (19c). In contrast, in (21b) the subject's right XP-boundary induces a ϕ-boundary between it and the verb. In the embedded clause in (21a) even more ϕ-boundaries intervene.

(21)a. {dat jij} {dagelijks} {met een hondje} {over straat}
     that you daily   *with a   doggy*   *in   the.street*
    {loopt}
    walk-2sg

   b.   {Jij} {loopt dagelijks} {met een hondje} {over straat}
     you walk-2sg daily   *with a   doggy*   *in   the.street*

   c.   {Dagelijks} {loop jij} {met een hondje} {over straat}
     daily   *walk you with a   doggy*   *in   the.street*

Consequently, (21a, b) require that subject agreement is spelled out in the regular way. However, if there is a specific allomorphy rule of the type

in (8), it can apply in (21c). The omission of the inflectional ending in (20c)/(22c) can indeed be attributed to such a rule. To make this clear, let us consider the feature system underlying the (Dutch) person/number paradigm. (Here we will partially follow proposals by Kerstens (1993) and Harley and Ritter (2002)).

We assume the following rules for the realization of verbal agreement in the Dutch present tense. The features [Prt], [Add] and [Plr] are unitary and stand for participant (in the speech act), addressee and plural, respectively. Which rule applies is dictated by the elsewhere condition. (Note that the apparent syncretism of second and third person singular is a historical accident; various dialects of Dutch still have a distinct second person *-st* ending.)

(22) a. [Prt] → ∅

b. [Prt, Add] → /-t/

c. [Plr] → /-en/

d. elsewhere form: /-t/

The agreement alternation illustrated in (19) and (21) can now be captured by an allomorphy rule that mentions prosodic phrases as its domain of application:

(23) *Dutch Agreement Weakening*
{[V Prt Add] [D Prt Add]} → {[V Prt] [D Prt Add]}

This rule states that the verb's [Add] feature is not realized if the verb is in the same prosodic domain as a second person DP. Consequently, the verb appears in its [Prt] form, that is, as the first person singular. (The rule will only apply in the present tense, since there is no person agreement in the past tense to begin with).

If the alternation in (21) is due to context-sensitive spell-out, it is predicted that a verb agreeing with a [Prt, Add] subject can only appear in its [Prt] form if no XP intervenes between the two. Intervention of an XP would have the consequence that the verb and the subject are no longer in the same prosodic phrase, in contrast to what the structural description of the rule demands. Indeed, fronting a constituent to a position between a verb in C and the subject is generally possible (see (24)), except if the used form of the verb depends on the special rule in (23). This is shown in (25b) (see Paardekooper 1961 and Hoekstra 1996 for related discussion

and observations).[6] Note that there is no strict adjacency condition on verb and pronoun in weakening contexts, since a modifier of the pronoun can intervene (there is no ϕ-bracket between modifier and modifiee). In the example in (25a), the relevant modifier is the focus particle *zelfs* 'even'.[7]

[6] It is sometimes suggested (for instance, by Paardekooper 1961) that a topicalized XP cannot intervene between the fronted verb and an inverted first person singular subject either. We think the relevant judgement is related to the fact that it is harder to meet the pragmatic conditions that hold of the relevant type of construction in case the subject is first person singular. In particular, when an XP is fronted across the subject, the XP is typically construed as a contrastive topic, while the subject is construed as contrastively focused. But since the speaker is always given in discourse, the favoured discourse status of a first person singular subject is as a noncontrastive topic, not as a focus. However, if the right context is provided, fronting across a first person singular subject is unproblematic, as shown in (i). In the same context, fronting across a second person singular subject is still incompatible with agreement weakening.

(i)   Speaker A:

We moeten morgen   en   dinsdag nog aardappels halen.
we must   tomorrow and tuesday still potatoes   get
We still have to get potatoes tomorrow and on Tuesday

Speaker B:

Ik kan morgen   als   ik terugkom van de kapper.
I can tomorrow when I back-come from the hairdresser
I can do it tomorrow when I come back from the hairdresser

Speaker A:

Ok, dan ga op DINSDAG *IK* wel.
ok   then go on Tuesday   I   alright
Ok, then I will go on Tuesday

[7] Hoekstra (1996) also judges sentences of the type in (25a), where the subject contains a DP-internal modifier, unacceptable. To us, it seems perfect. Indeed, a brief search of the internet reveals that the pattern is frequently attested. We speculate that Hoekstra's idiolect contains an additional allomorphy rule of the type in (14), stating that verb and second person singular pronoun must be realized as a prosodic word. In this case, the clitic form of the pronoun happens to be identical to that of the full pronoun. (The situation may be compared to that in Frisian, which does have a distinct clitic form of the second person singular pronoun in these contexts, see for instance De Haan 1997).

(24)a. {Volgens mij} {gaat zelfs hij} {op de heetste dag van
 according-to me go-3sg even be on the hottest day of
 't jaar} {naar het park}
 the year to the park
 I think that even he goes to the park on the hottest day of the
 year.

  a′. {Volgens mij} {gaat op de heetste dag van 't jaar}
 according-to me go-3sg on the hottest day of the year
 {zelfs hij} {naar het park}
 even he to the park

  b. {Volgens mij} {ging zelfs jij} {op de heetste dag van 't
 according-to me went even you on the hottest day of the
 jaar} {naar het park}
 year to the park
 I think that even you go to the park on the hottest day of the
 year.

  b′. {Volgens mij} {ging op de heetste dag van 't jaar} {zelfs
 according-to me went on the hottest day of the year even
 jij} {naar het park}
 you to the park

(25)a. {Volgens mij} {ga zelfs jij} {op de heetste dag van 't
 according-to me go even you on the hottest day of the
 jaar} {naar het park}
 year to the park

  b. *{Volgens mij} {ga op de heetste dag van 't jaar} {zelfs
 according-to me go on the hottest day of the year even
 jij} {naar het park}
 you to the park

When the allomorphy rule cannot apply, all agreement features are spelled
out as usual. Thus, (25b) should improve if the *-t* ending expressing [Prt,
Add] is used. Indeed, (26) is better than (25b).

(26)   ?{Volgens   mij} {gaat   op de heetste dag van 't jaar}
       according-to me   go-2sg on the hottest day of   the year
       {zelfs jij} {naar het park}
       even you to   the park

The example is not perfect, but this is presumably due to a parsing diffi-
culty rather than to a principle of the grammar. Examples with a fronted
constituent between verb and inverted subject are relatively rare. This
means that the presence of a *-t* ending on a verb in structures with subject-
verb inversion is a statistically reliable indication that a third person subject
will follow. (Recall that, if there is no intervening material between verb
and inverted subject, only third person singular subjects induce a *-t* ending
on the verb). In general, it pays off in parsing to create predictive shortcuts.
Hence, we speculate that if a speaker of Dutch encounters the string in
(27), where XP is not the subject, he or she will expect a third person
singular subject, with the consequence that the continuation in (26) creates
a garden-path effect.[8]

(27)   XP V-*t* . . .

We may note that the effect gets weaker with repetition or if more material
intervenes between verb and subject, as expected if it is psycholinguistic
in nature. Real mismatches in agreement, as in (28) for instance, are much
worse than (26) to begin with, and do not improve either with repetition or
if the distance between verb and subject is increased.

(28)   *{Volgens   mij} {gaan op de heetste dag van 't   jaar}
       according-to me   go-pl on the hottest day of   the year
       {zelfs jij}   {naar het park}
       even you(sg) to   the park

So far, we have assumed the traditional analysis of verb second, which
treats the phenomenon as uniform V-to-C raising. In other words, we as-
sume that subject-initial and non-subject-initial root clauses differ with
respect to the position of the subject (which is in spec-CP or spec-IP,

---

[8] No predictive shortcut will be adopted in parsing if there is no statistically significant
predictor of what is to follow. This means that in the absence of an allomorphy rule of the
type under discussion, a verbal agreement marker compatible with different types of in-
verted subjects will not give rise to expectations in parsing beyond the general expectation
that the subject be compatible with the agreement marker. Hence, there will be no garden
path effects with such agreement.

respectively). Travis (1984) and Zwart (1997) advocate an alternative view, according to which it is the position of the verb that is different in the two cases. When there is subject-verb inversion the verb is still assumed to be in C, but in subject-initial structures the verb is assumed to be in I (which is taken to precede its complement in Dutch); the subject occupies spec-IP in both cases:

(29)a. [IP Marie [I′ luistert   [vandaag naar het vioolconcert   van
        Mary   *listen-3sg today*   *to*   *the violin-concerto by*
      Sibelius t_V]]]
      Sibelius

   b. [CP   Vandaag [C′   luistert [IP   Marie [I′ t_V t_AdvP   naar   het
        today   *listen-3sg* *Mary*   *to*   *the*
      vioolconcert   van Sibelius t_V]]]
      violin-concerto by   Sibelius

The proposed allomorphy rule is compatible with either analysis of verb second, as it does not mention the syntactic position of the verb. Hence, we will not try to decide between the two approaches (see Weerman 1989; Vikner and Schwartz 1996; and Williams 1998 for some discussion). However, at first sight the asymmetric theory of verb second seems to make available an alternative account of the Dutch agreement alternation in terms of an allomorphy rule that is sensitive to the syntactic position of the verb. It could be argued that if V is in I or its base position, second person singular is realized as *-t*; while if it is in C, this ending is omitted. Using the features introduced above, this can be expressed by the rule in (30).

(30)   *Dutch Agreement Weakening*
      [Prt Add] → [Prt] / [C __]

Such an alternative account is not satisfactory. First, it is arbitrary that the weakening rule should mention C rather than I or the verb's base position. The distribution of full and weakened agreement could just as well have been the other way around. In contrast, our account ties the possibility of applying the weakening rule to the presence of an agreeing element in the same prosodic domain. Thus, it is no coincidence that it only applies when there is subject-verb inversion.

   Second, the adjacency effect illustrated in (25) remains a mystery if agreement weakening is conditioned by the syntactic position of the verb

only. In both (25a) and (25b) the verb is in C, the only difference being that in (25b) a constituent intervenes between verb and subject. That such intervention blocks application of the weakening rule suggests that the syntactic position of the verb is irrelevant. What the rule should state instead is that verb and subject must be in a local relation.

Third, Travis' and Zwart's analyses incorporate the traditional analysis of verb second as a subcase. It is still possible to raise the verb to C and move an arbitrary constituent to spec-CP. There is nothing in the theory as such that rules out derivations in which this arbitrary constituent is the subject. Thus, unless additional statements are added, subject-initial clauses are predicted to be ambiguous between a CP and an IP analysis. However, in that case subject-initial clauses should optionally show agreement weakening, in accordance with the rule in (30). This is not the case:

(31) a. [$_{IP}$ Jij [$_{I'}$ loopt   [dagelijks met een hondje over straat t$_V$]]]
        you   walk-2sG daily   with a   doggy in   the.street

  b. *[$_{CP}$ Jij [$_{C'}$ loop [$_{IP}$ t$_{DP}$ t$_V$ [dagelijks met een hondje over
        you   walk   daily   with a   doggy in

    straat t$_V$]]]]
    the.street

This last problem can be circumvented if subjects are barred from moving to spec-CP. For example, Zwart (1997) suggests that movement of an argument to spec-CP is triggered if it is either old information (a topic) or contrastive. Subjects can have these interpretations *in situ* (or at any rate in a position lower than spec-CP), and hence economy prevents them from moving into the COMP domain.

The assumption that movement of an argument to spec-CP is blocked in case it does not make available a new discourse function seems untenable to us. Objects, too, can be interpreted as contrastive or old information in their base position or a position lower than spec-CP. Nevertheless, they optionally move to spec-CP, as illustrated below for a contrastively focused object. There does not seem to be a difference in the discourse status of *Jan* in the examples in (32).

(32) a. JAN heb ik een boek gegeven, niet Piet
        John have I a   book given,   not Pete
        I have given a book to John, not to Pete.

  b. Ik heb JAN   een boek gegeven, niet Piet
        I have John a   book given,   not Pete

It could be that for some unknown reason subjects in general cannot be moved to topic or focus positions. But this would have to be a principle specific to Dutch, since in a language like Hungarian topic subjects and focused subjects obligatorily move to the designated positions in the left periphery of the clause. Hence, the principle would serve no other function than to exclude the undesired examples of the type in (31b), making it *ad hoc*. Once an allomorphy rule sensitive to prosodic phrasing is adopted, however, it is no longer necessary to prevent the subject from moving to spec-CP. If the subject precedes the verb, the rule will not apply, no matter whether the clause is a CP or IP.

4. ARABIC AGREEMENT WEAKENING

In Dutch, agreement weakening is restricted to the second person singular (it targets the [Add] feature). Of course, similar rules may affect other features in other languages. In fact, a context-sensitive rule of suppression that targets the [Plr] feature can account for a well-known agreement alternation in Modern Standard Arabic.[9]

The basic observation is as follows. Standard Arabic is a VSO language which allows for the movement of various constituents to a preverbal position. If the subject is fronted, yielding SVO order, there is full agreement in person, number and gender (strong agreement). But if the subject remains *in situ* (or in spec-IP on some analyses), agreement is restricted to person and gender only (weak agreement). This is illustrated in (33) (unless indicated otherwise, all examples in this section are from Fassi Fehri 1993, pp. 28–32).

(33) a. daxal-at   n-nisaaʔ-u   makaatib-a-hunna
     entered-FEM the-women-NOM office-PLR-ACC-their-FEM
     The women entered their offices.

  a′. *daxal-na   n-nisaaʔ-u   makaatib-a-hunna
     entered-FEM-PLR the-women-NOM office-PLR-ACC-their-FEM

  b. n-nisaaʔ-u   daxal-na   makaatib-a-hunna
     the-women-NOM entered-FEM-PLR office-PLR-ACC-their-FEM

  b′. *n-nisaaʔ-u   daxal-at   makaatib-a-hunna
     the-women-NOM entered-FEM office-PLR-ACC-their-FEM

---

[9] For the sake of brevity, we will sometimes refer to Modern Standard Arabic as 'Arabic' (though the agreement alternation under discussion is not generally found in the modern dialects of Arabic).

There is one exception to this general pattern: there is obligatory full agreement with postverbal pronominal subjects. We abstract away from this here, but return to it in section 8.

Although there seems to be general consensus that preverbal subjects are topics, their syntactic status is a matter of debate. It is sometimes suggested that they are uniformly in a left-dislocated position. On this view, strong agreement can be analysed as an incorporated subject pronoun (see section 6 on Irish); this pronoun would then be linked by coreference with a dislocated nominative DP. Such an analysis appears to be corroborated by the fact that there is a parallel construction involving objects:

(34)   al-ʔawlaad-u   darad-tu-hum
         the-children-NOM beat-I-them
         The children, I beat them

However, as Fassi Fehri (1993) points out, the view that preverbal subjects are uniformly left-dislocated is untenable. Note first that preverbal objects need not be accompanied by a resumptive clitic:

(35)a.   baqarat-an šaahad-tu
         cow-ACC   saw-I
         A cow, I saw

   b.   kull-a   rajul-in   ʔ-ahtarim-u
         every-ACC man-GEN I-respect-INDIC
         Every man, I respect

Thus, there are two constructions in which an object DP appears in preverbal position: a dislocation structure and a topicalization structure. The former involves coreference with a resumptive pronoun, the latter is derived by movement. Fassi Fehri shows that not every type of DP that can be topicalized can occur in dislocation. In particular, indefinites and quantifiers can only be topicalized, as the contrast between (35) and (36) shows.

(36)a.*ʔbaqarat-un dabah-tu-haa
         cow-NOM   cut.throat-I-her
         A cow, I cut its throat

   b.*ʔkull-u   rajul-in   ʔ-ahtarim-u-hu
         every-NOM man-GEN I-respect-INDIC-him
         Every man, I respect him

Moreover, elements in dislocation cannot follow a question particle (or a complementizer), but topicalized elements can:

(37)a. ʔa zayd-an   raʔay-ta
        Q Zayd-ACC saw-you
        Is it Zayd that you saw?

    b.*??a zayd-un   raʔa-ta-hu
        Q Zayd-NOM saw-you-him

Crucially, preverbal subjects can be indefinites or quantifiers, and they can follow a question particle:

(38)a. baqarat-un takallam-at
        cow-NOM   spoke-3SG.FEM
        A cow has spoken

    b. kull-u   rajul-in y-ahtarim-u   haadaa
        every-NOM man-GEN 3-respect-INDIC this
        Every man respects this

(39)   ʔa zayd-un   qaal-a   haadaa
        Q Zayd-NOM said-3SG.MASC this
        Is it Zaid that said this?

These data show that preverbal subjects need not be dislocated. This in turn entails that strong agreement is genuine agreement, not an incorporated pronoun. Otherwise, subject topicalization structures should show weak agreement, contrary to fact.[10,11]

    The agreement alternation in Arabic can be dealt with by the same type of context-sensitive allomorphy rule that is responsible for the agreement alternation in Dutch. Let us assume that VSO word order is derived by

---

[10] Of course, if the subject is referential it can occur in both topicalization and dislocation structures. In contrast to dislocated objects, dislocated subjects are not accompanied by an overt resumptive pronoun, because Arabic drops pronominal subjects (at least nonfocused ones; see section 8 for some discussion).

[11] Ouhalla (1991) argues against a movement analysis of topicalization structures on the basis of the fact that in ECM constructions preverbal subjects appear in the accusative, which implies that they cannot have moved from another case position. For an alternative account, compatible with the assumptions made here, see Neeleman and Weerman (1999, pp. 195–202).

fronting of the verb to some functional head F (see (40a)), while SVO order is derived by movement of the subject to spec-FP (see (40b)); see Sproat 1985; McCloskey 1996 and others, also for discussion of the nature of F, something irrelevant to our present purposes). As will be clear from the previous sections, the two structures differ in whether or not the verb is realized in the same prosodic phrase as the subject. Given the mapping principle in (4) this is only the case in the VSO order, as indicated in (40a′, b′). (In the PF representations in (40) 'subject' and 'object' stand for the relevant terminal nodes; recall there is no syntactic structure at PF. For convenience, we will also occasionally represent the terminals in an XP at PF as 'XP').

(40)a. $[_{FP} [_F V] [_{IP}$ subject $t_V [_{VP} t_V$ object$]]]$

   a′.   {V subject} {object}

   b. $[_{FP}$ subject $[_F V] [_{IP} t_{subject} t_V [_{VP} t_V$ object$]]]$

   b′.   {subject} {V object}

As a consequence, an agreement weakening rule of the type discussed in section 3 can affect (40a′), but not (40b′). The rule in question is formulated in (41).

(41)   *Arabic Agreement Weakening*
       $\{[V\ Plr\ldots][D\ Plr\ldots]\} \rightarrow \{[V\ldots][D\ Plr\ldots]\}$

The idea that the Arabic agreement alternation is a PF phenomenon also forms the basis of Benmamoun's (2000) account. It is developed differently, however: Benmamoun proposes a process of PF merger (re-bracketing under adjacency) that affects subject and verb. It has the effect that the number feature on the subject counts as exponent of the number feature on the verb, so that the latter is not expressed independently anymore. This is very similar to what the rule in (41) expresses. The difference between the two accounts lies in the characterization of the configuration that triggers agreement weakening. Benmamoun does not provide a specific theory of PF merger from which it follows that only postverbal subjects can undergo the process. Topicalized subjects, too, are adjacent to the verb, so it is not immediately clear what should stop PF merger and thus suppression of the verb's number feature.

    The rule in (41) straightforwardly accounts for a further set of data discussed by Benmamoun (2000). In structures containing both an auxiliary verb and a main verb, the subject can either be placed between the two

verbs or in sentence-initial position. Agreement co-varies with order: only verbs that follow the subject show strong agreement, as illustrated in (42) (from Benmamoun 1996, p. 109).

(42) a. kaanat   T-Taalibaat-u   ya-ʔkul-na
         be-PAST-3sg-FEM the-students-FEM-PLR-NOM 3-eat-FEM-PLR

         The students were eating

      b. T-Taalibaat-u   kun-na   ya-ʔkul-na
         the-students-FEM-PLR-NOM be-PAST-3-FEM-PLR 3-eat-FEM-PLR

      b′. *kun-na   T-Taalibaat-u   ya-ʔkul-na
         be-PAST-3-FEM-PLR the-students-FEM-PLR-NOM 3-eat-FEM-PLR

We assume that the auxiliary is generated in an Aux position (perhaps T) and moved to F, as in (43a). The optional subject movement discussed above then results in (43b). As the corresponding prosodic structures show, agreement weakening can apply to the auxiliary in (43a′), but not in (43b′). Neither structure allows for weakening the main verb's agreement.

(43) a. $[_{FP} [_F V_{aux}] [_{AuxP}$ subject $t_{aux} [_{VP} V_{main}$ object$]]]$

     a′. $\{V_{aux}$ subject$\}$ $\{V_{main}$ object$\}$

     b. $[_{FP}$ subject $[_F V_{aux}] [_{AuxP} t_{subject} t_{aux} [_{VP} V_{main}$ object$]]]$

     b′. $\{$subject$\}$ $\{V_{aux} V_{main}$ object$\}$

So, the Arabic data can be analyzed as involving agreement weakening in prosodic phrases. An alternative, syntactic, analysis might be that strong agreement obtains when the subject and the verb are in a specifier-head configuration in overt syntax. Analyses based on such an assumption have indeed been proposed by Huybregts (1991), Fassi Fehri (1993), Bolotin (1995) and Guasti and Rizzi (2002). Let us consider this type of syntactic account.

Suppose that strong agreement in Standard Arabic requires the verb and its subject to be in a specifier-head configuration in overt syntax. Then, the data in (42) can be analyzed as follows. In (42b), both the main verb and the auxiliary have strong agreement, which implies the subject must move from a specifier position in which it checks the main verb's features (say spec-FP_2) to spec-FP, where it checks the auxiliary's features, as in (44a). In (42a), only the main verb has strong agreement, with the consequence

that movement of the subject to spec-FP is procrastinated (or takes the form of feature movement).[12] This is illustrated in (44b).[13]

(44)a.	$[_{FP}$ subject $[_F$ $V_{aux}]$ $[_{AuxP}$ $t_{subject}$ t_{aux} $[_{FP2}$ $t_{subject}$ $[_{F2}$ V_{main} $]$ $[_{VP}$ $t_{v\text{-}main}$ object$]]]]$

b.	$[_{FP}$ $[_F$ $V_{aux}]$ $[_{AuxP}$ subject t_{aux} $[_{FP2}$ $t_{subject}$ $[_{F2}$ V_{main} $]$ $[_{VP}$ $t_{v\text{-}main}$ object$]]]]$

With this in mind, let us return to the examples that do not involve an auxiliary. Assuming the same structures as before, the SVO and VSO orders must be analyzed as in (45a) and (45b) respectively. However, if the trace of the subject can check strong agreement against the main verb in FP_2 in structures with an auxiliary as in (44), there is no reason why it cannot do so in (45b). In other words, there is no reason why strong agreement should be incompatible with VSO order, as in fact it is. (Possibly the AuxP is not present in (45), so that the overt subject would be located in spec-FP_2. This does not affect the argument.)

(45)a.	$[_{FP}$ subject $[_F$ V$]$ $[_{AuxP}$ $t_{subject}$ t_V $[_{FP2}$ $t_{subject}$ $[_{F2}$ $t_V]$ $[_{VP}$ t_V object$]]]]$

b.	$[_{FP}$ $[_F$ V$]$ $[_{AuxP}$ subject t_V $[_{FP2}$ $t_{subject}$ $[_{F2}$ $t_V]$ $[_{VP}$ t_V object$]]]]$

The only difference between (44) and (45b) is that in the latter structure agreement is checked by the verb's trace, rather than by the head of the verbal chain. This means the syntactic account can be salvaged by assuming that only overt verbs can check strong agreement in Arabic. However, traces are copies of their antecedents (Chomsky 1995), which means that there is no reason to expect that they could not participate in checking relations. In fact, verbal traces can perfectly well participate in regular

---

[12] Huybregts (1991) in fact assumes that there is overt agreement checking in VSO structures as well, the difference with SVO being that there is an empty expletive specified as third person singular present in the higher subject position in apparent VSO structures. This assumption also underlies the analyses in Fassi Fehri (1989) and Mohammad (1990). Fassi Fehri (1993, pp. 38–42) points out a number of disadvantages of this view, however. Most importantly, it seems to us, is that it just shifts the problem, since the question now is why the empty expletive must be specified as singular while being associated with a plural subject.

[13] In line with minimalist assumptions, checking takes place in the functional domain. The subject may have been base-generated in spec-VP, something from which we abstract away in (44). Finally, we assume that the subject moves to the regular subject position, spec-IP, in order to check nominative case, but this, too, is irrelevant for the argument.

syntactic checking. For example, agreeing verbs in verb-second languages can move to C across the subject without this leading to any problems.[14]

5. CLITICIZATION IN DUTCH

5.1. *Middle Dutch*

Like present-day Dutch (see section 3), Middle Dutch has verb second in root contexts. As opposed to modern Dutch, it has a set of object clitics, in addition to the strong and weak pronouns that exist in both languages. These clitics occupy a fixed position in the clause: they immediately follow the head in C, with which they form a phonological word. Thus, in main clauses they attach to the fronted verb, whereas in embedded clauses they attach to the complementizer (the observation and the examples are due to Weerman 1989, p. 15):

(46)a. Nu   moete-ne onse vrouwe bewaren
       now must-him our   lady   save
       Now, our lady must have him.

   b. Soe   troest-se   de hope vander goetheit   Gods
      Thus consoles-her the hope of-the   goodness god-GEN
      Thus, the hope of the goodness of God consoles her.

   c. datt-en   God niet en   spaert
      that-him God not NEG saves
      that God does not save him.

---

[14] A possible problem for the approach to the Arabic agreement alternation we propose are VOS orders, in which agreement is weak. This fact cannot be due to a rule of phonological reduction, given that verb and subject are not in the same prosodic domain. One alternative would be to assume that in the case of VOS order no [Plr] feature can be generated on the verb in the first place. Suppose, for example, that such a feature must be checked in syntax, and that syntactic checking requires the relevant phrase to precede the head (as is standard in minimalism). This would make a verb bearing [Pl] compatible with VSO and SVO sentences (in which the subject precedes the verb or its trace), but incompatible with VOS order. Thus, weak agreement with VOS order would be a case of non-generation rather than reduction. As explained in the main text, an account based on syntactic checking cannot as such be responsible for agreement weakening in VSO contexts.

d. dat-si   de moeder wacht
that-them the mother awaits
that the mother awaits them.

We will argue that this type of cliticization involves another allomorphy rule sensitive to initial prosodic phrasing, this time of the type in (14).

According to one view, clitics are nominal elements which are base-generated on the verb and which absorb the verb's internal Θ-role and accusative features (see for instance Miller and Sag 1997; Monachesi 1999, and references mentioned there). For Middle Dutch object clitics, however, such an analysis cannot work.[15] The data in (46c, d) show that the clitic attaches to C even if this position is occupied by a complementizer rather than the verb. Since the clitic is the internal argument of the verb all the same, it seems that for this type of cliticization it must be assumed that the clitic starts out as the verb's complement and moves to its surface position.

This ties in with another popular view of cliticization, according to which the phenomenon is an instance of head movement. Note, however, that an analysis of Middle Dutch object clitics according to which they move from their base position directly to C violates Travis' (1984) head movement constraint, as illustrated in (47). (We assume that clitics are D heads, see Corver and Delfitto 1993, amongst others).

(47) $[_{CP} \ldots \text{C-D} [_{IP} \ldots [_{VP} \ldots [_{DP} \text{t}_D] \text{V}] \ldots]]$

This means that cliticization to C must be a two-step process. As Cardinaletti and Roberts (1991) propose for analogous cases, the object DP first undergoes phrasal movement to the left periphery of IP (thus avoiding a violation of the head movement constraint), after which its head cliticizes to C. Independent evidence for the existence of the conjectured phrasal movement is that full pronouns can undergo it as well. They, too, can be found in a position to the left of the subject (cf. (48a, b)), as well as in a position lower in the tree (cf. (48c, d)) (Middle Dutch examples from Van Gestel et al. 1992, pp. 112, 150).

(48)a. Doe so bat   heme Lanceloet
then so asked him   Lancelot
The Lancelot asked him thus

---

[15] This analysis (or the syntactic analysis in terms of head movement mentioned below) appears to be more appropriate for cliticization of the type found in Romance. In Romance, as opposed to Germanic, clitics move along with the verb and show up in positions from which their pronominal counterparts are barred.

b. dat mi die crancheit sal doen dolen
that me the illness   will do   wander
that the illness will make me err

c. Soe moetti [...] mine mesdaet mi vergheven
so   must-be   my   crime   me forgive
So he must gorgive me my crime

d. In   hebbe niet mi gheset daertoe
I-NEG have   not me applied there-to
I have not applied myself to that

Cardinaletti and Roberts (1991) view cliticization in the cases under discussion as an instance of head movement. The D-head of the pronominal DP incorporates into the host. The complete derivation is given in (50), where the first step of DP movement consists of adjunction to IP (Cardinaletti and Roberts analyze it as movement to the specifier position of a functional projection, but this does not affect the argumentation here).

(49)   [$_{CP}$ ... C-D [$_{IP}$ [$_{DP}$ t$_D$] [$_{IP}$ subject ... [$_{VP}$ ... t$_D$P V] ...]]]

Although this derivation does not involve head movements that skip a head, the step of incorporation in (49) violates Huang's (1982) condition on extraction domains, which bans movement from adjuncts and specifiers (see also Baker 1988 for arguments that incorporation out of adjuncts or specifiers is impossible).[16] Moreover, if object cliticization is achieved through movement, it remains unclear why it invariably takes the form of encliticization rather than procliticization in Middle Dutch. As we will now argue, a prosodic account of the actual step of cliticization fares better in these respects.

The DP movement to the left edge of IP, which is independently available for object pronouns in Middle Dutch, creates a context in which a pronoun finds itself in the same prosodic phrase as the complementizer

---

[16] This problem can perhaps be avoided by adopting a view on clitics originally proposed by Muysken (1982), according to which they are simultaneously heads and maximal projections. On this view, there is no extraction of a head from an adjunct or specifier when the clitic incorporates. However, the analysis faces another problem. In order for the first movement (to the left edge of IP) not to violate the head movement constraint, a phrasal chain must be formed. Syntactic incorporation of phrases into heads is presumably impossible, however, so the second movement step must involve a head chain. The resulting composite chain therefore violates chain uniformity (cf. Chomsky 1995; or, alternatively, the lowest trace violates Müller and Sternefeld's (1993) principle of unambiguous binding).

or the fronted verb in C. This contrasts with what is the case when the pronoun remains in its base position or is shifted to a position following the subject. The relevant structures are given in (50).

(50)a. [$_{CP}$ ... C [$_{IP}$ pronoun [$_{IP}$ subject ... [$_{VP}$ ... t$_{pron}$ V] ...]]

a′. {...} {C pronoun} {subject} {...} {V}

b. [$_{CP}$ ... C [$_{IP}$ subject ... [$_{VP}$ pronoun [$_{VP}$ ... t$_{pron}$ V] ...]]

b′. {...} {C subject} {...} {pronoun} {...} {V}

c. [$_{CP}$ ... C [$_{IP}$ subject ... [$_{VP}$ ... pronoun V] ...]]

c′. {...} {C subject} {...} {pronoun} {V}

In (50a′), but not in (50b′) or (50c′), an allomorphy rule of the type in (14) can apply:[17]

(51)   *Middle Dutch Pronoun Weakening*
        {... C ... [D (Prt) (Add) ...] ... } →
        {... <C ... [D (Prt) (Add) ...]> ... }

In contrast to the cases discussed in the previous sections, the allomorphy rule affects the prosodic status of the pronoun, rather than the feature make-up of the terminal. Note, however, that the alternation in question cannot be derived by a purely phonological (post-interface) rule, since in several cases there is no plausible phonological relation between the full pronoun and the associated clitic. For example, the object pronoun for the third person feminine singular is *haer* (/ha:r/), whereas the clitic is *se* (/sə/). There must be independent spell-out rules for these two forms, and

---

[17] At this point, we should note that the rule can apply recursively. Consider the situation in which the head in C is followed by a subject pronoun and an object pronoun. The initial prosodic phrasing allows for cliticisation of the subject pronoun, as this element is contained in the same ϕ as the preceding head. On the plausible assumption that edges of clitics cannot support ϕ-boundaries, subject cliticisation leads to an adjustment of the prosodic structure, such that the object pronoun finds itself in a φ with material it can cliticise to. As a result, a post-C subject-object clitic cluster can arise, as the example in (i) shows (from Van Gestel et al. 1992, p. 147). Note that this example illustrates that a clitic does not have to be string-adjacent to C, as long as the material that intervenes does not form an independent prosodic word (see section 2).

(i)   Soe darict   u   vertellen wel
        so   dare-I-it you tell   well

application of (51) forces insertion of a pronominal form smaller than a prosodic word: a clitic. If (51) does not apply, insertion of the clitic form is blocked by the strict layer hypothesis (see section 2).

As opposed to the allomorphy rule discussed in section 3, it appears that the rule in (51) applies optionally: full pronouns can occur in precisely the same position as clitics (see (48a, b)). This may seem awkward at first glance. However, the rule differs from the ones discussed before in that it has an effect on interpretation. In particular, since a clitic cannot bear stress, interpretations that rely on the presence of stress (such as focus or contrastive topic) can only obtain if the rule does not apply. In other words, we can maintain that rule application is obligatory, but relative to a target interpretation. The full pronouns in (48a, b) should hence have a discourse status which differs from that of the clitics in (46). Although likely, this is obviously hard to test for a dead language.

There is an issue of execution related to this suggestion: how does PF 'know' that the pronoun must be contrastive and hence receive stress? This is an instantiation of the more general problem of how intonation and interpretation are linked, given that in the traditional T-model there is no direct relation between phonology and semantics. Two possible solutions present themselves. One could assume that foci and contrastive topics are marked as such by a feature in syntax, the module that connects semantics and phonology in the T-model. These features can then be taken to block application of the rule in (51). Alternatively, one could adjust the T-model in such a way that PF is directly linked to pragmatic interpretation (see Reinhart 1995 and Szendrői 2001). If so, the pragmatic module may require stress on the pronoun, which would again block application of (51).

The prosodic approach to Middle Dutch object cliticization accounts for the distribution of clitics without running into the problems mentioned in connection with the syntactic alternative. It also explains why cliticization to C consistently involves encliticization. Given that Middle Dutch is a verb-second language, XPs in general, and so pronouns as well, can be fronted to a position preceding C in main clauses (as in (52a)). However, pronouns cannot reduce to clitics if fronted to this position, since they do not find themselves in the same prosodic domain as the verb in C. In other words, the structural description for the weakening rule in (51) is not met in (52b). Similarly, in (50c, c′) the pronoun cannot procliticize to the verb that follows it, since there is a ϕ-boundary that separates them.

(52)a. $[_{\text{CP}} \text{ pronoun } [_{\text{C}} \text{ V}] [_{\text{IP}} \text{ subject } \ldots [_{\text{VP}} \ldots t_{\text{pron}} t_{\text{V}}] \ldots]]$

    b. {pronoun} {V subject} {...}

Note, finally, that the distribution of Middle Dutch object clitics is not accounted for by only stating that they require a phonological host on their left; the rule in (51) must be involved. If it were not, it would be unclear why an object pronoun cannot cliticize in its base-position, or in a scrambled position below the subject, to whatever precedes it.

5.2. *Modern Dutch*

Let us now compare the situation in modern Dutch with the Middle Dutch state of affairs. Modern Dutch has lost object cliticization to C:

(53)   * dat-'t Jan gedaan heeft
         that-it John done   has
         that John has done it

This can be explained in terms of the above analysis. Modern Dutch differs from Middle Dutch in that object pronouns can no longer be shifted across the subject.[18] This is illustrated in (54) (compare with the Middle Dutch examples in (48)).

(54)a. *Toen vroeg hem Lancelot waar   de jonkvrouw was
         then asked him Lancelot where the lady   was

    b. *dat mij de ziekte zal doen dwalen
         that me the illness will make wander

    c. Toen vroeg Lancelot hem waar   de jonkvrouw was
        then asked Lancelot him where the lady   was
        Then Lancelot asked him where the lady was.

    d. dat de ziekte mij zal doen dwalen
        that the illness me will make wander
        that the illness will make me wander

Given the absence of this type of movement, object pronouns do not immediately follow C. Therefore, the structural description of a rule like (51) is not met; only the representations in (50b, b′) and (50c, c′) exist. Such a rule can hence not be acquired in modern Dutch. As a consequence, the

---

[18] Focused elements or contrastive topics can be fronted to a position preceding the subject (see (24a′, b′) for examples). Object pronouns can undergo this movement as well. This does not affect the argument, however, since reduction of foci and contrastive topics is impossible to begin with, as argued above. The situation differs from Middle Dutch, in which a fronted object pronoun could be noncontrastive as well.

language does not have specific clitic forms for objects any more, only strong and weak object pronouns (see Cardinaletti and Starke 1999 on the distinction between weak pronouns and clitics).

In fact, the analysis predicts that one type of pronoun can still be cliticized to C in modern Dutch. Subject pronouns are usually realized in the same prosodic phrase as the complementizer or the fronted verb (the pronoun in (55) is a subject):

(55)a. $[_{CP} \ldots C \; [_{IP}$ pronoun $\ldots$

    b. $\{\ldots\} \; \{C \text{ pronoun}\} \; \{\ldots$

In (55b), the subject pronoun could undergo an allomorphy rule of the type under discussion. Modern Dutch does indeed have one clitic form, namely for third person singular masculine subjects. This is the form *ie* (pronounced /i:/), the clitic counterpart of the full form *hij* (pronounced /hɛi/). The following spell-out rules are thus part of modern Dutch grammar:

(56)a.   [D, Masc] $\rightarrow$ /hɛi$_\omega$/

    b.   [D, Masc] $\rightarrow$ /i:$_\sigma$/

The distribution of the clitic form is regulated by the rule in (57) (in conjunction with the strict layer hypothesis).

(57)   *Modern Dutch* Hij *Weakening*
        $\{\ldots C \ldots [\text{D Masc}] \ldots\} \rightarrow \{\ldots <C \ldots [\text{D Masc}]> \ldots\}$

If *ie* is not just a weak pronoun but a clitic form that results from application of (57), it should behave on a par with the Middle Dutch object clitics. Indeed it does: in all contexts where the subject is not right-adjacent to C, *ie* cannot appear. This is the case when a constituent is fronted to a position between C and the subject, as in (58c, c′), as well as when the subject is topicalized in a main clause, as in (58d, d′)):[19]

(58)a.   {dat hij}   {gisteren} {de afwas} {deed}
        that he$_{STRONG}$ yesterday the dishes   did
        that he did the dishes yesterday

    a′.   {dat ie}   {gisteren} {de afwas} {deed}
        that he$_{CL}$ yesterday   the dishes   did

[19] Note that the order in (58c, c′) favours a contrastive reading of the subject, which precludes the use of a weak pronoun or clitic as well. However, if something else in the

b.   {Gisteren} {deed hij}   {de afwas}
yesterday   did he$_{STRONG}$ the dishes

b′. {Gisteren} {deed ie} {de afwas}
yesterday   did he$_{CL}$ the dishes

c.   {dat gisteren} {hij} {de afwas} {deed}
that yesterday he$_{CL}$ the dishes   did

c′. *{dat gisteren} {ie}   {de afwas} {deed}
that yesterday he$_{STRONG}$ the dishes   did

d.   {Hij}   {deed gisteren} {de afwas}
he$_{STRONG}$ did yesterday   the afwas

d′. *{Ie} {deed gisteren} {de afwas}
he$_{CL}$ did yesterday   the dishes

We find, then, that the possibility of cliticization depends on whether or not the syntax allows a pronoun to immediately follow a head. This confirms the view that this type of cliticization is conditioned by prosodic phrasing.

   The proposed analysis seems to predict that object cliticization could occur in specific circumstances in Modern Dutch after all. It is possible for the object to end up to the immediate right of a fronted verb when the subject is topicalized, as in (59).

(59)a.   [$_{CP}$ subject [$_C$ V] [$_{IP}$ t$_{subject}$ [$_{VP}$ pronoun t$_V$]]]

     b.   {subject} {V pronoun}

---

sentence is focused, weak pronouns can be used in this order, whereas use of *ie* still leads to ungrammaticality. An example is given below:

(i)a.   dat op mooie   dagen ze   alleen over reisjes naar het zuiden wil
that on beautiful days she$_{WEAK}$ only   about trips   to   the South wants
praten
to-talk
that on beautiful days she only wants to talk about trips to the South

   b. * dat op mooie   dagen ie   alleen over reisjes naar het zuiden wil   praten
that on beautiful days he$_{CL}$ only   about trips   to   the South wants to-talk

Still, there are no special reduced (clitic) forms for object pronouns in this context. The following data illustrate this:[20]

(60) a. {Bob} {vergeet haar} {nooit}
    Bob forgets her$_{STRONG}$ never
    Bob will never forger her.

  b. {Bob} {vergeet d'r} {nooit}
    Bob forgets her$_{WEAK}$ never

  c. *{Bob} {vergeet ze} {nooit}
    Bob forgets her$_{CL}$ never

Note, however, that in the syntactic representation of these sentences there *is* an element between the verb and the object, namely the trace of the subject (see (59a)). The assumptions made in section 2 imply that traces of phrasal movement give rise to ϕ-boundaries in the initial prosodic representation, even though they are not represented in phonology proper. Since initial prosodic phrasing occurs on the basis of syntactic information (see (3b)), and since traces of maximal projections are maximal projections themselves, additional assumptions would have to be made for traces *not* to trigger ϕ-closure. Right alignment of syntactic and prosodic phrases will hence have the result that (59a) is mapped to the initial prosodic representation in (61) rather than to the one in (59b).

(61)   {subject} {V} {pronoun}

In this representation the object pronoun and the fronted verb are not in the same prosodic phrase, so the structural description for a hypothetical rule of cliticization in modern Dutch is not met.

There are other phenomena that can be understood more easily if traces trigger ϕ-closure. Although we cannot discuss this in detail, we think that *wanna* contraction in English is a case in point. This process can be analyzed as largely parallel to cliticization in Dutch: if *to* finds itself in the same prosodic domain as a verb, the two elements are realized as a single prosodic word:

(62)   *English* to *contraction*
    $\{\ldots V \ldots I_{INF} \ldots\} \rightarrow \{\ldots <V \ldots I_{INF}> \ldots\}$

---

[20] Here we borrow the object clitic form *ze* from Middle Dutch. The same form does in fact still occur in some variants of Dutch today. These dialects still have object cliticization to C and pronoun fronting across the subject, on a par with Middle Dutch. An example is West-Flemish, see Haegeman (1990).

The English lexicon has a special spell-out rule for the combination of *want* and *to* when these form a single phonological word (compare (16) in section 2):[21]

(63)   <want I$_{\text{INF}}$> → /wanna/

Forms like *wanna* must be listed as such in the lexicon because only combinations of *to* with a specific set of verbs are spelled-out in an idiosyncratic manner. (The idea that forms like *wanna* are listed also underlies Postal and Pullum's (1982) and Roberts' (1997) analyses).

There is indeed evidence that the rule in (62), whose application is necessary for *wanna* contraction to occur, is sensitive to ϕ-boundaries: *wanna* contraction is blocked when *want* and *to* are contained in different prosodic phrases. The examples in (64) illustrate this (compare Postal and Pullum 1982 and Goodall 2001).

(64)a.   [It seems [like [to want]] [to regret that one does not have]]

   b.   [I don't want [anyone [who continues [to want]]] [to stop wanting]]

   c.   [One must [want] [to become an over-effective consumer]]

In these examples there is at least one right XP bracket between *want* and *to*. As a result, the two do not end up in a single prosodic phrase. (In fact, they are in different intonational phrases in at least (64a) and (64b)). *Wanna* contraction is hence impossible in these contexts.[22]

If *wanna* contraction is sensitive to prosodic phrasing, the old observation that traces block *wanna* contraction (see Lakoff 1970) can be understood if these elements indeed trigger ϕ-closure. In (65b, b′), the

---

[21] The form *want* in (63) stands for the morphosyntactic feature bundle that instantiates this verb in syntax, not for its phonological form (which is not present at PF). This type of rule is, of course, quite common. It accounts for forms like German *zum* which spells out a prosodic word consisting of *zu* 'to' and *dem* 'the.DAT', or French *du* (from *de le* 'of the.MASC.SG').

[22] *Wanna* contraction is also impossible if either *want* or *to* is part of a coordinated constituent. Although we do not have an explanation for this, we speculate that it is related to the fact that weakened forms are barred from being coordinated (see section 6). If so, it is in line with a prosodic account of the phenomenon.

right edge of the trace induces a ϕ-boundary that separates *want* and *to*.[23,24]

(65)a.   [Who do [you want [to meet t$_{WH}$]]]

    a′.   {Who} {do you} {want to meet}

    b.   [Who do [you want [t$_{WH}$ to meet John]]]

    b′.   {Who} {do you} {want} {to meet John}

Thus, the rule that derives a phonological word <want to> cannot apply in (65b′), with the consequence that the spell-out rule in (63) cannot apply either:

(66)   *Who do you wanna meet John

For precisely the same reason, the presence of the subject trace in (59) blocks application of an object pronoun reduction rule in Dutch.

    This is not to say that prosodic structures as in (61) will surface as such. As argued in section 2, there are phonological operations that apply beyond the PF interface, after allomorphy rules have applied. These deal with

---

[23] The argument is based on the assumption that examples like (65a) do not contain a PRO subject (as argued by Brame 1976; Manzini and Roussou 2000 and others) and hence no ϕ-boundary between *want* and *to*. Alternatively, if there is a PRO subject, it could be assumed to follow the embedded VP or to appear between *to* and the embedded verb (not being exceptionally case-marked by the matrix verb).

[24] Anderson and Lightfoot (2002) suggest that, as a result of a general locality condition on reduction, *wanna* contraction is only possible if *to* is the highest element in the complement of *want*. Thus their approach, like ours, accepts that the trace in (65b, b′) is instrumental in blocking the rule.

    An anonymous reviewer suggests that this conclusion might not hold if it can be argued that the left bracket of the ECM complement in (65b, b′) triggers a prosodic boundary that in turn blocks contraction. Although left edges of certain clauses (such as finite CPs) indeed coincide with left edges of intonational phrases, it is unlikely that the same is true of ECM complements. The most natural prosodic phrasing of the example in (i) is as indicated.

(i)   {The happy couple} {wanted their friends} {to attend their wedding} {in Peru}

    The reviewer's suggestion might be helpful in ruling out *wanna* contraction in the following example from Anderson and Lightfoot, if the CP in subject position can be argued to be a type of clause whose left edge coincides with the left edge of a prosodic domain:

(ii)   They don't want [$_{CP}$ to win games] to be their only goal

weight distribution, amongst other things. Following Nespor and Vogel (1986) and Truckenbrodt (1999), we assumed that phonological phrases that do not contain enough material require restructuring: they are joined with an adjacent prosodic phrase. This may happen to the ϕ that only contains the verb in (61), resulting in the representation in (67).

(67)   {/subject/} {/verb/ /pronoun/}

Because of late restructuring rules of this type, and because traces are not spelled-out, we expect that phonological processes that apply beyond the PF interface will not be sensitive to traces. This appears to be correct (see Nespor and Vogel 1986, pp. 48–57 for detailed discussion).

6. CELTIC SUBJECT CLITICIZATION

The above account of object cliticization in Middle Dutch supports an analysis of pro-drop in some Celtic languages in the spirit of Anderson (1982), Pranka (1983) and Doron (1988). Consider Irish. The most striking property of this language from the perspective of this paper is that the agreement morphology that is present in pro-drop structures (resulting in the so-called synthetic form of the verb) is omitted when the subject is overtly realized (resulting in the so-called analytic form of the verb). In this respect, Irish differs from classic pro-drop languages like Italian, in which agreement is always present. The examples in (68), from Mc-Closkey and Hale (1984), illustrate the phenomenon. (Hendrick (2000) notes that certain verb-pronoun combinations do not partake in the agreement alternation; we will ignore this fact below, as it does not affect the analysis).

(68)a. Chuirfinn   isteach ar an   phot sin
         put-COND-1sg in   on that job
         I would apply for that job

    a′. *Chuirfinn   mé isteach ar an   phost sin
         put-COND-1sg I   in   on that job

    b. * Chuirfeadh isteach ar an   phost sin
         put-COND   in   on that job

    b′. Chuirfeadh Eoghan isteach ar an   phost sin
         put-COND   Owen   in   on that job

Several analyses of the complementary distribution between agreement and subject assume that the apparent agreement ending in (68a) is in fact an incorporated subject pronoun.[25] There are two basic variants of this view. In one it is assumed that the pronoun is incorporated through syntactic head-to-head movement; the other assumes a phonological or morphological reanalysis.

The syntactic approach faces a couple of problems, one of which it shares with the syntactic analysis of object cliticization in Middle Dutch: the condition on extraction domains excludes incorporation out of subject DPs. Moreover, as pointed out by McCloskey and Hale (1984), the pronoun can be incorporated from the lefthand part of a coordinated subject,

---

[25] Similar data in other Celtic languages have also been argued to involve pronoun incorporation, see for instance Anderson (1982) on Breton and Adger (2000) on Scottish Gaelic. Stump (1984) provides a critique of Anderson's incorporation analysis. We believe that the more serious of the problems he mentions are problems for the syntactic incorporation analysis only, as discussed below.

As an alternative to an incorporation analysis, Stump (1984) proposes what he terms an 'agreement analysis' for Breton. According to this analysis, agreement is optional, but required to license a pro subject (as would be expected on the basis of traditional analyses of Italian-style pro-drop). For the Irish data, comparable analyses have been proposed by McCloskey and Hale (1984) and Legate (1999). The main problem these analyses face is that they need an additional assumption to account for the complementary distribution between overt pronouns and agreement, as compared to incorporation analyses. In addition to the claim that agreement is optional, something must be said about the impossibility of combining an overt pronoun with agreement (as is possible in pro-drop languages of the Italian type).

Stump simply stipulates this. Legate argues that Irish has a null pronominal form that can realize any set of phi features, but that can only be inserted if the phi features of the verb are spelled out. According to Legate, this means that the null pronoun requires a more specific context than an overt pronoun, which can be used regardless of whether the phi features of the verb are spelled out. If so, the elsewhere principle rules out insertion of an overt pronoun in contexts licensing the null pronoun. Note, however, that overt pronouns cannot be inserted in just any context: as opposed to the null pronoun, they must spell out a specific set of phi features. This means that the contexts in which an overt pronoun can be inserted do not form a superset of the contexts that allow insertion of the null pronoun. For instance, first person singular agreement blocks insertion of an overt third person singular pronoun, but it does license the null pronoun. Conversely, the analytic form of the verb licenses an overt pronoun, but not the null pronoun. Hence, a particular overt pronoun never stands in an elsewhere relation with the null pronoun.

Another potential drawback of agreement analyses is that they do not explain why VSO structures are the typical environment in which complementarity between pronouns and agreement is found (see Roberts and Shlonsky 1996).

as illustrated in (69). If the incorporation involved syntactic movement, this would violate the coordinate structure constraint.

(69) da mbeinn-se   agus tusa   ann
      if be-COND-1sg-CONTR and you-CONTR there
      if I and you were there

The alternative relies on either phonological or morphological adjustment of the verb-pronoun sequence (Pranka 1983; Doron 1988; Adger 2000). Evidently, the type of allomorphy rule proposed here can provide an account of the data along such lines. The analysis runs entirely parallel to that of Dutch clitics in the previous section.

   Note first that the VSO ordering of the Celtic languages has the consequence that verb and subject are realized in the same prosodic phrase. Assuming that VSO word order is derived by verb movement to a functional head F, the following structures obtain (see also section 4 on Arabic):

(70)a. $[_{FP} [_F$ V$]$ $[_{IP}$ subject t_V $[_{VP} t_V$ object$]]]$

    b.   {V subject} {object}

Since the verb and the subject are in the same ϕ in (70b), they can be subject to an allomorphy rule of the format in (14). The data in (68) fall out from (71), which is identical to the rule that governs the distribution of objects clitics in Middle Dutch, except for the specification of the pronoun's host:

(71)   *Irish Pronoun Weakening*
       { ... [-N] ... [D (Prt) (Add) ...] ... } →
       { ... < [-N] ... [D (Prt) (Add) ...] > ... }

This rule must of course be combined with spell-out rules for verbs, regular pronouns and pronouns that form a phonological word with the verb. The rule mentions the categorial feature [-N], rather than the category V, because after prepositions one finds the same complementary distribution of overt DPs and (apparent) agreement (see Acquaviva 2000 and the references mentioned there). This is of some interest, since it shows that the syntactic function of the pronoun with respect to its host is irrelevant in structures that allow weakening. The crucial factor is that the pronoun and its host must be in the same prosodic phrase.

   A feature in which Irish pronoun weakening differs from its Middle Dutch counterpart is that the rule seems to apply obligatorily. As Doron

(1988, p. 203) notes: "when a synthetic form exists, such as *chuirfinn*, it is in general ungrammatical to use an analytic form together with a pronominal subject". This is illustrated by Doron's example in (72) (compare with (68b′); all Irish and Welsh examples below are taken from Doron's paper).

(72) * Chuirfeadh mé isteach ar an phost sin
      put-COND   I   in   on that job

For Middle Dutch we noted that the optionality of cliticization was only apparent. The full pronoun can only occur in the position fitting the structural description of the weakening rule if it is in focus or a contrastive topic. These interpretations require stress on the pronoun, which is incompatible with realization as a clitic. In Irish, however, an alternative means of marking contrastiveness is employed, namely insertion of the suffix *-se*. This suffix is compatible with full as well as reduced pronouns; the latter option is demonstrated in (73). The existence of this way of marking contrastiveness has the consequence that interpretational requirements cannot block application of the pronoun weakening rule. Hence, it applies obligatorily whenever its structural description is met.

(73) Chuirfinn-se
      put-COND-1sg-CONTR

The availability of a special suffix marking contrastiveness in Irish but not Dutch explains a further difference between pronoun weakening in the two languages. Whereas Irish allows reduction of the first part of a coordinated subject, as was illustrated by (69), the same is impossible in Dutch:

(74)a. dat hij   en Jan naar huis gaan
       that he$_{STRONG}$ and John to   home go
       that he and John go home

   b. *dat ie   en Jan naar huis gaan
       that he$_{CL}$ and John to   home go

Note that, as such, the phenomenon of first conjunct reduction finds a natural explanation on our account. The alignment condition in (4) has the effect that the verb and the subject's first conjunct form a prosodic phrase from which the second conjunct is excluded:

(75)a. [$_{FP}$ [$_F$ V] [$_{IP}$ [pronoun & pronoun] t$_V$ [$_{VP}$ t$_V$ ...]]]

   b. {V pronoun} {& pronoun} {...}

Hence, the weakening rule may affect the first, but not the second, conjunct.

The reason why this nevertheless does not occur in Dutch is that coordinated pronouns are typically interpreted as being contrastive (cf. Cardinaletti and Starke 1999). Consequently, destressed forms like clitics or weak pronouns cannot be coordinated in languages that mark contrastiveness by stress, see (76). The coordinated pronoun in the first conjunct of (74) can therefore not undergo reduction to *ie*.

(76)a. Ik zie hem   en   haar
        I see he_{STRONG} and her_{STRONG}

    * Ik zie 'm   en   d'r
        I see him_{WEAR} and her_{WEAR}

Use of the constrastive *-se* suffix in Irish, which is compatible with reduced forms, avoids this problem. There is no difficulty in weakening a coordinated pronoun, as long as *-se* is present. Indeed, omission of *-se* results in ungrammaticality; compare (77) with (69):

(77)   * da mbeinn   agus tu(sa)   ann
        if be-COND-1sg and you-(CONTR) there
        if I and you were there

As was the case for Dutch, our theory predicts that pronoun weakening is blocked if the pronoun precedes the verb, since in that case pronoun and verb are not in the same ϕ. Thus it is no coincidence that the type of agreement alternation discussed is typical of languages whose syntax allows or requires VSO structures (such as Irish, Hebrew (in past and future tenses; see Doron 1988) and Chamorro (see Chung 1982)).

The relation between VS order and pronoun weakening is corroborated more directly by Welsh. Welsh shows the same alternation between synthetic and analytic forms of the verb as does Irish, but in Welsh it seems to be optionally possible to have a pronoun accompany a synthetic verb form, as in (78).

(78)   'r   oeddwn   'n cwyno
        COMP be-PAST-1.sg in complain
        I was complaining

We assume that the spell-out rules for pronouns in both languages are essentially the same: in postverbal subject position a pronoun undergoes

weakening, and obligatorily so. The only difference between the two is that, as argued by Doron, the contrastive marker is spelled out as *-se* in Irish, while it takes the form of a reduplicant pronoun in Welsh (see also Rouveret 1991). A parallel type of doubling can be observed with object pronouns in French. Unfocused pronouns are obligatorily cliticized to the verb (by syntactic cliticization, see note 13). When the object is in focus, however, a tonic double appears in its base position. Kayne (2001) argues that the clitic and its double start out as one complex DP (see also Uriagereka 1995 and Papangeli 2000 for analyses of object clitic doubling in other languages based on different variants of this idea). Subsequently, the tonic pronoun is stranded by movement of the clitic, as in (79a).[26]

(79)a. Je [$_{VP}$ [$_V$ le   vois] [$_{DP}$ t$_D$ [$_{DP}$ lui]]]
        I   him see   him
        It is him that I see.

   b. * Je [$_{VP}$ vois [$_{DP}$ lui]]
        I   see   him

Note that doubling is obligatory in these contexts, as (79b) shows. This implies that the tonic form is not simply a full counterpart of the clitic, but indeed a double that accompanies the clitic in instances of focus, as assumed for Welsh.

A syntactic difference between Welsh and Irish is that, in addition to VSO order, Welsh allows fronting of the subject, yielding SVO order. If a verb is combined with a pronominal subject in this order, the pronoun cannot undergo weakening and the verb must appear in its analytic form (see (80)). Moreover, if the pronoun is focused, there is overt doubling; that is, two instances of the pronoun. Thus, this confirms that the synthetic form of the verb is the result of an allomorphy rule of the type in (71), which cannot apply if the pronoun precedes the verb.

(80)   yfi   oedd(*wn)   yn cwyno
        *I-REDUP be-PAST(-*1sg) in complain*
        It was I that was complaining

---

[26] French allows subject clitics to be doubled by full DPs or contrastive pronouns. The relevant data cannot be analyzed along the same lines, as the condition on extraction domains would then be violated. The general consensus seems to be that such structures either involve left dislocation of the double or, in some varieties of French, reanalysis of the clitic as agreement.

We have now seen two processes of pronoun weakening conditioned by prosodic phrasing. In the next section, we discuss a radical variant of pronoun reduction. Old French pronouns can be reduced to zero in exactly the predicted context.

7. OLD FRENCH PRO-DROP

The distribution of pro-drop in Old French, as discussed by Adams (1987), displays curious asymmetries between root and embedded clauses and between structures with and without subject-verb inversion. Old French was a verb-second language. Pro-drop turns out to be possible in exactly one context, namely in main clauses in which subject-verb inversion would occur if the subject were overt (an observation that goes back to Foulet 1928). Thus, it is possible in declarative main clauses in which a constituent other than the subject is fronted and in yes/no questions, but it is unattested in embedded clauses and subject-initial declaratives; see (81) ((81a, b) are from Adams (1987), (81c, d) are constructed examples of unattested structures).

(81)a. Einsi corurent __ par mer tant que il vindrent à
       thus ran-3PLR by sea until they came-3PLR to
       Cademelée
       Cadmée
       Thus they ran by the sea until they came to Cadmée.

   b. Oserai __ le vous demander?
      dare-1SG it you ask
      Do I dare ask it of you?

   c. *Einsi corurent li Grieu par mer tant que __ vindrent à
      thus ran-3PLR the Greeks by sea until came-3PLR to
      Cademelée
      Cadmée

   d. *__ corurent einsi par mer tant que il vindrent à
      ran-3PLR thus by sea until they came-3PLR to
      Cademelèe
      Cadmée

The generalization emerging from these data is that omitted subjects must immediately follow the inflected verb. Such a right-adjacency condition

can be derived from the prosodic theory of reduction developed above. Only if the subject immediately follows the inflected verb is it grouped in the same prosodic phrase as this head:

(82)a. $[_{CP}$ XP $[_C$ V-agr$]$ $[_{IP}$ subject ... $[_{VP}$ t_V ... $]$ ... $]]$

a′. {XP} {V-agr subject} {...

b. $[_{CP}$ C $[_{IP}$ subject ... $[_{VP}$ V-agr ... $]$ ... $]]$

b′. {c subject} {...} {V-agr ... } {...

c. $[_{CP}$ subject $[_C$ V-agr$]$ $[_{IP}$ $t_{subject}$ ... $[_{VP}$ t_V ... $]$ ... $]]$

c′. {subject} {V-agr ... } {...

One may therefore assume that this type of pro-drop is the result of an allomorphy rule, on a par with the reduction rules for pronouns discussed in sections 5 and 6. There is an important difference, however. The earlier reductions affected the form of the pronoun, rather than the spell-out of its features: the pronoun was realized as a clitic or an affix, but nevertheless all its features were expressed. In contrast, in the Old French case the reduction involves the spell-out of the pronoun's features, since (rather obviously) none of these features is overtly realized in the examples in (81a, b). As suggested in section 2, suppression of features is only possible under agreement with another element in the prosodic phrase that contains the affected element (see (13)). The consequence is that Old French pro-drop has a more limited distribution than pronoun weakening in Middle Dutch or Celtic. Whereas the latter is possible when the pronoun is right-adjacent to a verbal head, Old French pro-drop requires right-adjacency to a head that agrees with the pronoun. This is precisely what the data in (81) show. These data are hence accounted for by the following rule:

(83) *Old French Pro Drop*
{... [X (Plr) (Prt) (Add)] ... [D (Plr) (Prt) (Add) ...] ... } →
{... [X (Plr) (Prt) (Add)] ... [ ] ... }

The rule deletes all features of the subject pronoun, with the consequence that no vocabulary insertion will take place. (Notice that the pronoun may contain features that do not partake in the agreement relation with the finite verb (there is, for instance, no agreement for gender). This is in line with the intended reading of the recoverability condition in (13); see section 9 for related discussion.)

Old French pro-drop is thus analyzed on a par with Dutch second person agreement weakening (see section 3). It, too, presents an instance of the rule scheme in (8). The difference with the Dutch case is that in Old French the pronoun, rather than a feature of the agreeing verb, fails to be spelled out.

As was the case in Middle Dutch, Old French pronoun weakening appears to be optional. But again this is only apparent, since the structure with the overt pronoun and the structure with the reduced (null) pronoun fulfill different discourse functions. According to Sprouse and Vance (1999, p. 274) "null and overt pronouns in postverbal position, although they are referentially equivalent, carry the potential for a discourse distinction that is realized in declaratives." In particular, covert postverbal subject pronouns are associated with thematic (old) information in spec-CP, whereas overt pronouns can be associated with new information in this position (Vance 1997). Moreover, Adams (1987, p. 6, fn. 6) notes that Old French also did not have a series of special tonic forms of the pronouns, but used one series for both nonemphatic and emphatic contexts. This means that, as assumed for Middle Dutch, the overt post-V subject pronouns may also have been emphatic, a reading obviously incompatible with the null form. (Again this is hard to test for a dead language.)

As before, it is imaginable that French pro-drop is subject to a syntactic adjacency condition. This is, in fact, what Adams (1987) proposes. She analyzes Old French pro-drop as involving an empty pronominal subject *pro*. Following Rizzi (1986), she assumes that the occurrence of *pro* is subject to two conditions: both its content and its position must be identified. The general consensus seems to be that content identification of *pro* relies on rich agreement, which Old French has. Adams further argues that positional identification of *pro* takes the form of head government in a particular direction. This is summed up in (84) (Adams's (8)).

(84) a.   The position and content of *pro* must be identified

     i. The position of *pro* is identified by a governing head

     ii. The content of *pro* is identified by coindexation with the proper features

     b.   Government of *pro* (a.i) must be in the canonical direction.

On the further assumptions that the governing head mentioned in (84a.i) is I^0, and that this head governs to the right (Old French is a VO language), the data in (81) follow.

Again, however, it seems to us that the prosodic account has advantages over an account in syntactic terms, in this case government. Apart from the

fact that the syntactic account does not extend to the other cases unified under the prosodic account, some of the properties of the phenomenon at hand are quite unexpected. First of all, the licensing conditions in (84) must crucially involve the surface position of *pro*. In subject-initial declarative main clauses, a trace of the subject is governed in the canonical direction by the inflected verb (see (85a)). It is unclear why this is not sufficient to license a fronted *pro*. Other properties of nominal elements that require government in GB theory, such as case licensing of object DPs, can be licensed by government of a trace of the element in question (see (85b)).

(85)a. $^*[_{CP}$ *pro* $[_C$ V-AGR$]$ $[_{IP}$ t_{pro} ... $[_{VP}$ t_V ... $]$ ... $]]$

    b. $[_{CP}$ DP-acc $[_C$ V-agr$]$ $[_{IP}$ subject ... $[_{VP}$ t_V t_{DP} ... $]$ ... $]]$

In contrast, a PF account does explain why it is the surface position of the element to be reduced that counts.

Moreover, in the syntactic account it is accidental that it is I^0 that must govern *pro*. After all, there is no reason why the licenser of *pro*'s content (which undoubtedly is I^0) and the licenser of its position should be one and the same. It must hence be stipulated in the syntactic account that government by C is not sufficient for positional licensing of *pro* (government by C would license the ungrammatical (81c)). In the end, then, the syntactic account of the ungrammaticality of pro-drop in embedded clauses in Old French is based on a stipulation. The prosodic account, on the other hand, explains why right-adjacency to an agreeing head (rather than to an arbitrary head) is expected in cases of non-spell-out.

8. ARABIC PRO-DROP

In section 4 we discussed the phenomenon of agreement weakening in VSO structures in Standard Arabic. As it turns out, Arabic has a second prosodically conditioned reduction rule, one which targets the subject rather than the verb. This second rule is identical to the rule of pro-drop in Old French, proposed in the previous section. Pronominal subjects can fail to be spelled out if they follow an agreeing head, a situation captured by the following rule (which is identical to (83), except for the [Fem(inine)] feature required for gender agreement):

(86)   *Arabic Pro-Drop*
        {... [X (Plr) (Prt) (Add) (Fem)] ... [D (Plr) (Prt) (Add) (Fem)] ... } → {... [X (Plr) (Prt) (Add) (Fem)] ... [   ] ... }

This rule must apply in VSO structures like (87a, a′) (abstracting away from contrastive readings of the subject); in SVO structures like (87b, b′) the structural description of the rule is not met, and hence a pronominal subject must be spelled out.

(87) a. [FP [F V] [IP subject tV [VP tV object]]]

a′. {V subject} {object}

b. [FP subject [F V] [IP t_subject tV [VP tV object]]]

b′. {subject} {V object}

At first sight, it would seem difficult to prove that only postverbal subjects undergo pro-drop. Omission of the subject in both SVO and VSO structures results in a surface VO string. Moreover, since pro-drop is only possible if there is full agreement on the verb, and full agreement is typical precisely of SVO order (see section 4), one might be inclined to draw the opposite conclusion, namely that pro-drop is restricted to preverbal subjects. However, there is what seems to be conclusive empirical evidence for postverbal, and against preverbal, pro-drop. The data involve clauses introduced by one of two complementizers, the first of which exclusively shows up in VSO clauses, while the second requires SVO order.

The complementizer *ʔanna* (or *ʔinna* in main clauses) assigns accusative case to a subject to its right under adjacency. Hence, it only occurs in SVO clauses, not in VSO clauses (Fassi Fehri 1993, p. 50):

(88) a. ʔinna n-nisaaʔ-an   daxal-na   makatib-a-hunna
        that   the-woman-ACC entered-FEM-PLR office-PLR-ACC-their-FEM

b. * ʔinna   daxal-at   n-nisaaʔ-u/   n-nisaaʔ-an
        that   entered-FEM   the-women-NOM/   the-women-ACC
        makaatib-a-hunna
        office-PLR-ACC-their-FEM

Now, as noted by Mohammad (1990:100) "the complementizer *ʔanna* 'that' never allows *pro* to follow it". Mohammad provides the following data in support:

(89) a. al-ʔawlaad-u qaaluu   ʔanna-hum saafaruu
        the-boys-NOM said-3PLR-MASC that-they   departed-3PLR-MASC

b. * al-ʔawlaad-u qaaluu   ʔanna __ saafaruu
        the-boys-NOM said-3PLR-MASC that   departed-3PLR-MASC

This shows that pro-drop is impossible in preverbal position.

The second complementizer is *ʔan*, which does not have case assigning properties and perhaps as a result of this does not license SVO order (see Fassi Fehri 1993, p. 78). VSO order is obligatory, as (90) shows.

(90)a. *ʔan   n-nisaaʔ-u/   n-nisaaʔ-an   daxal-at
       that   the-women-NOM/   the women-ACC   entered-FEM

       makaatib-a-hunna
       office-PLR-ACC-their-FEM

    b. ʔan daxal-at   n-nisaaʔ-u   makaatib-a-hunna
       that entered-FEM the-women-NOM office-PLR-ACC-their-FEM

As observed by Plunkett (1993, p. 236), pro-drop is licensed in these structures. She gives the example below in evidence:

(91)   y-uriid-u   ʔan ya-xrumu-a ___
        want-3.M.SG that leave-3-MASC-SG-SUBJ
        He wants to leave.

This shows that pro-drop is possible in postverbal position, in accordance with the rule in (86).

As noted, subject omission in Arabic does not only bear on the theory of pro-drop, but also on accounts of strong versus weak agreement. The reason is that we unexpectedly find obligatory strong agreement in pro-drop structures, which, as we have just seen, have a postverbal subject (see (92); compare Benmamoun 2000, p. 127). (In contrast, VSO structures with an overt subject show weak agreement, see section 4).

(92)   ya-dxul-uuna ___ al   bayt-a
        enter-3.MASC.PLR the house-ACC
        They entered the house

It seems hard to account for this observation in the minimalist syntactic analysis of Arabic agreement sketched in section 4. Recall that in this account, strong agreement triggers overt raising of the subject to the specifier of an agreement projection, while weak agreement is only checked after spell-out (covertly). Hence, given that pro-drop must be licensed by strong agreement, it should be restricted to preverbal position. Put differently, if strong agreement must be checked in overt syntax, it is hard to see how lack of phonological content in the subject would void this requirement.

In the prosodic approach the difference in agreement in VSO clauses with and without pro-drop can be explained in the following way. Both pro-drop and weak agreement are the result of reduction rules, which affect the subject and the verb respectively. The question raised by the obligatory strong agreement in pro-drop structures, then, is why application of the pro-drop rule would block application of the agreement weakening rule. Why can both reduction rules not apply at the same time?

The reason is that application of agreement weakening destroys the context for the pro drop rule and vice versa. The rule for agreement weakening is repeated below:

(93)   *Arabic Agreement Weakening*

$\{[\text{V Plr} \ldots] [\text{D Plr} \ldots]\} \rightarrow \{[\text{V} \ldots] [\text{D Plr} \ldots]\}$

The rule in (86) requires a fully agreeing verb in the context of the pronoun, whereas (93) deletes one of the verb's phi-features. Conversely, the rule in (93) requires a pronoun with a [Plr] feature in the context of the verb, whereas (86) deletes all features of the pronoun. So, in either order application of one rule blocks application of the other, with the effect that pro-drop is accompanied by strong agreement.

To conclude this section, let us return to an issue left open in section 4. Whereas overt postverbal lexical DP subjects trigger agreement weakening, overt postverbal pronominals do not. This is demonstrated by the following examples from Aoun et al. (1994, p. 209):

(94) a. Naamuu   hum
         slept-MASC-PLR they
     b. * Naama   hum
         slept-MASC-SG they

Given the above discussion of pro-drop in Arabic, this fact can now be analyzed on a par with the co-occurrence of synthetic verb forms with an overt pronominal subject in Welsh and the co-occurrence of object clitics with tonic pronominal doubles in French. Following Doron (1988), we have assumed that (apparent) pro-drop in Welsh is in fact obligatory: postverbal subject pronouns are always reduced to phonological affixes. However, when the subject is focused, the reduced pronoun is doubled by a full form (see (95a, a′)). Similarly, emphasis is reconciled with object cliticization in French by a tonic pronominal double (see (95b)).

(95) a. [$_{FP}$ V [$_{IP}$ [[pronoun$_1$] pronoun$_2$] . . .]]

     a′. {<V pronoun$_1$> pronoun$_2$} {. . .

b.   Je [$_{VP}$ [$_V$ le vois] [$_{DP}$ t$_D$ [$_{DP}$ lui]]]

The same pattern is found in Arabic. Pro-drop is obligatory. However, if the subject is focused, it is doubled by a tonic pronoun (see also Benmamoun 2000, p. 127; for discussion of pronoun doubling in general in Arabic, see the papers in Eid 1996). Since pro-drop blocks weakening of verbal agreement, as we have just seen, the structure will require strong agreement:[27]

(96)a.   [$_{FP}$ V-agr [$_{IP}$ [[pronoun$_1$] pronoun$_2$] . . .]]

b.   {V-agr [ ] pronoun$_2$} {. . .

9. CONCLUDING REMARKS

In this paper we have argued that certain allomorphy rules are sensitive to initial prosodic phrasing. If a terminal finds itself in the same prosodic phrase at PF as a certain other terminal, its feature content may be altered, or the two terminals may be grouped together in a phonological word. In both cases the result can be that the terminal receives a spell-out different from the one it usually receives. We have seen six examples of this. In Dutch and Arabic, a feature of an inflected verb is deleted prior to vocabulary insertion if the subject is in the same ϕ. In Middle Dutch and Celtic, a pronominal argument is realized as clitic when it is in the same ϕ as another head. In Old French and Arabic, finally, a pronominal argument is reduced to zero when it is in the same ϕ as an agreeing verb. Syntactic analyses of the relevant phenomena do not seem adequate; moreover, they do not seem to allow for a generalization covering all these cases, as opposed to the prosodic analysis.

The local domain employed in the allomorphy rules discussed here may play a role in other grammatical processes as well. In particular, since the morpho-syntactic features of terminals are accessible at PF, one can imagine that the process of feature checking may in certain cases take place

---

[27] This accounts for the grammaticality of (94a). It does not yet account for the impossibility of combining weak agreement with a phonologically realized pronoun (as in (94b)), or with two pronouns in the case of doubling. Such structures could be derived by applying agreement weakening instead of pro-drop (compare the discussion above). This will not happen, however. Apart from the double in focus constructions, pronouns are weak in Arabic (so, pronoun focusing involves a weak pronoun doubled by a strong one). It is a general property of languages that allow pro-drop that weak pronouns cannot be used in positions where pro-drop is possible.

at PF rather than in syntax proper. If so, such cases of feature checking should be sensitive to the initial prosodic phrasing as well. We believe that there are indeed checking relations that can be analyzed in this way, in particular case checking in SVO and VSO languages (see Neeleman and Weerman 1999) and complementizer agreement in certain Germanic dialects (see Ackema and Neeleman 2002). We cannot go into this here. Instead, we will conclude by clarifying a remaining issue concerning the proposed allomorphy rules.

The first type of allomorphy rule we discussed suppresses a morphosyntactic feature in a terminal under agreement with another terminal in the same ϕ. There is an asymmetry with respect to which of the two terminals is affected by suppression, however. If only one feature is suppressed, this will be a feature of the agreeing verb, not of the DP argument. For example, a second person singular pronoun is never spelled out as a first person singular pronoun when it immediately follows a second person singular verb. An agreement alternation as in the hypothetical Dutch examples in (97) is not attested, as far as we know.

(97) a. Jij loopt   dagelijks met een hondje over straat
        you walk-2sg daily   with a   doggy in   the.street
        every day you walk with a doggy in the street

     b. Loopt   ik dagelijks met een hondje over straat?
        walk-2sg I daily   with a   doggy in   the.street
        Do you walk with a doggy in the street every day?

Thus, there is no allomorphy rule of the type in (98) (compare with (23)).

(98)   *Hypothetical Dutch Agreement Weakening*
       {[V Prt Add] [D Prt Add]} → {[V Prt Add] [D Prt]}

On the other hand, it is not impossible to suppress features of the DP: they can be suppressed entirely, giving rise to pro-drop of the Old French and Arabic type.

Apparently, there is a PF condition that has the effect that either none or all of the features of an argument can be suppressed, whereas verbs allow suppression of just one of their features. The relevant condition can be formulated as follows:

(99)   If a predicate agrees with an argument, then the phi-features in
       the predicate form a subset of the phi-features in the argument

A rule like (98) cannot exist, because its output would violate the PF condition in (99): the features of the subject are no longer a superset of those in the predicate. (Note that (99) is satisfied if argument and predicate have the same features, since it mentions a subset rather than a proper subset). In contrast, full pro-drop is compatible with (99) because it suppresses the argument altogether. Hence, at PF there is no longer an agreement relation, so that (99) is satisfied vacuously.

We speculate that (99) has a functional basis, in terms of interpretive strategies employed in parsing. The simplest way for a hearer to determine the reference of an argument is to consider the interpretable features associated with the form that spells out this argument. In case one of the features of the argument is deleted, this strategy will give the wrong result. But if no argument at all is present, this strategy cannot apply. Instead, the hearer will rely on the uninterpretable features on the verb to determine the reference of the dropped pronoun.[28]

REFERENCES

Ackema, Peter and Ad Neeleman. 2002. *Interfaces in Word Formation*, ms., University of Nijmegen and University College London

Acquaviva, Paolo. 2000. *Irish Prepositional Agreement and Autonomous Morphology*, ms., University College Dublin.

Adams, Marianne. 1987. 'From Old French to the Theory of Pro-Drop', *Natural Language and Linguistic Theory* **5**, 1–32.

Adger, David. 2000. 'Feature Checking under Adjacency and VSO Clause Structure', in R. Borsley and J. Kornfilt (eds.), *The Nature and Function of Syntactic Categories*, San Diego: Academic Press, pp. 79–100.

Adger, David. 2001. 'Interfacing Syntax, Morphology and Prosody: The Case of the Old Irish Verb', ms., University of York.

Anderson, Stephen. 1982. 'Where's Morphology?', *Linguistic Inquiry* **13**, 571–612.

Anderson, Stephen and David Lightfoot. 2002. *The Language Organ*, Cambridge: Cambridge University Press.

Aoun, Joseph, Elabbas Benmamoun and Dominique Sportiche. 1994. 'Agreement, Word Order, and Conjunction in Some Varieties of Arabic', *Linguistic Inquiry* **25**, 195–220.

Baker, Mark. 1988. *Incorporation*, Chicago: University of Chicago Press.

Benmamoun, Elabbas. 1996. 'Agreement Asymmetries and the PF Interface', *SOAS Working Papers in Linguistics* **6**, 106–128.

---

[28] As a reviewer points out, the argumentation in this section seems at odds with Bonet's (1995) analysis of feature suppression in Romance clitic clusters, which assumes deletion of only some phi-features in the affected clitic. It would take us too far afield to discuss this issue here, but we would speculate that the difference between the two types of suppression has to do with their triggers. In the case of the Dutch second person ending, suppression avoids local repetition of identical features, while in Romance clitic clusters it avoids local repetition of identical forms.

Benmamoun, Elabbas. 2000. *The Feature Structure of Functional Categories*, Oxford: Oxford University Press.

Besten, Hans den. 1983. 'On the Interaction of Root Transformations and Lexical Deletive Rules', in W. Abraham (ed.), *On the Formal Syntax of the West-Germania*, Amsterdam: John Benjamins, pp. 47–131.

Bobaljik, Jonathan. 2002. 'A-Chains at the PF Interface: Copies and "Covert" Movement', *Natural Language and Linguistic Theory* **20**, 197–267.

Bolotin, Naomi. 1995. 'Arabic and Parametric VSO Agreement', in M. Eid (ed.), *Perspectives on Arabic Linguistics VII*, Amsterdam: John Benjamins, pp. 9–27.

Bonet, Eulàlia. 1991. *Morphology after Syntax: Pronominal Clitics in Romance*, PhD dissertation, MIT.

Bonet, Eulàlia. 1995. 'Feature Structure of Romance Clitics', *Natural Language and Linguistic Theory* **13**, 607–647.

Brame, Michael. 1976. 'Alternatives to the Tensed S and Specified Subject Conditions', *Linguistics and Philosophy* **1**, 381–411.

Cardinaletti, Anna, and Ian Roberts. 1991. 'Clause Structure and X-Second', ms., University of Venice and University of Geneva.

Cardinaletti, Anna, and Michal Starke. 1999. 'The Typology of Structural Deficiency', in H. van Riemsdijk (ed.), *Clitics in the Languages of Europe*, Berlin: Mouton de Gruyter, pp. 145–233.

Chen, Matthew. 1987. 'The Syntax of Xiamen Tone Sandhi', *Phonology Yearbook* **4**, 109–149.

Cho, Young-Nee Yu. 1990. 'Syntax and Phrasing in Korean', in S. Inkelas and D. Zec (eds.), *The Phonology-Syntax Connection*, Chicago: University of Chicago Press, pp. 47–62.

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

Chomsky, Noam and Morris Halle. 1968. *The Sound Pattern of English*, New York: Harper and Row.

Chung, Sandra. 1982. 'On Extending the Null Subject Parameter to NPs', in *Proceedings of WCCFL I*, Stanford: Stanford Linguistics Association, pp. 125– 136.

Clements, George. 1978. 'Tone and Syntax in Ewe', in D.J. Napoli (ed.), *Elements of Tone, Stress, and Intonation*, Washington, DC: Georgetown University Press, pp. 21– 99.

Corver, Norbert, and Denis Delfitto. 1993. 'Feature Asymmetry and the Nature of Pronoun Movement', ms., Tilburg University and Utrecht University.

Doron, Edit. 1988. 'On the Complementarity of Subject and Subject-Verb Agreement', in M. Barlow and C. Fergusson (eds.), *Agreement in Natural Language: Approaches, Theory, Description*, Stanford: CSLI Publications, pp. 201–218.

Eid, Mushira (ed.). 1996. *Perspectives on Arabic Linguistics VI*, Amsterdam: John Benjamins.

Embick, David and Ralf Noyer. 2001. 'Movement Operations after Syntax', *Linguistic Inquiry* **32**, 555–595.

Fassi Fehri, Abdelkader. 1989. 'Generalized IP Structure, Case, and VS Order', *MIT Working Papers in Linguistics* **10**, 75–111.

Fassi Fehri, Abdelkader. 1993. *Issues in the Structure of Arabic Clauses and Words*, Dordrecht: Kluwer.

Foulet, Lucien. 1928. *Petite syntaxe de l'ancien français*, Paris: Champion.

Gestel, Frank van, Jan Nijen Twilhaar, Tineke Rinkel and Fred Weerman. 1992. *Oude zinnen*, Leiden: Martinus Nijhoff.

Goodall, Grant. 2001. 'Contraction', ms., University of Texas at El Paso. To appear in M. Everaert and H. van Riemsdijk (eds.), *The Syntax Companion*, Oxford: Basil Blackwell.

Guasti, Maria Teresa and Luigi Rizzi. 2002. 'Agreement and Tense as Distinct Syntactic Positions: Evidence from Acquisition', in G. Cinque (ed.), *Functional Structure in DP and IP*, Oxford: Oxford University Press.

Haan, Germen de. 1997. 'Voegwoordcongruentie in het Fries', in E. Hoekstra and C. Smits (eds.), *Vervoegde voegwoorden*, Amsterdam: Edita, pp. 50–67.

Haegeman, Liliane. 1990. 'Subject Pronouns and Subject Clitics in West- Flemish', *The Linguistic Review* **7**, 333–363.

Halle, Morris, and Alec Marantz. 1993. 'Distributed Morphology and the Pieces of Inflection', in K. Hale and S. J. Keyser (eds.), *The View from Building 20*, Cambridge, MA: MIT Press, pp. 111–176.

Harbour, Daniel. 2001. 'The Kiowa Case for Feature Insertion', paper presented at the 3rd Mediterranean Morphology Meeting, Pompeu Fabra University, Barcelona.

Harley, Heidi, and Elizabeth Ritter. 2002. 'A Feature-Geometric Analysis of Person and Number', *Language* **78**, 482–526.

Hendrick, Randall. 2000. 'Celtic Initials', in A. Carnie and E. Guilfoyle (eds.), *The Syntax of Verb Initial Languages*, Oxford: Oxford University Press, pp. 13–37.

Hoekstra, Eric. 1996. 'On the Interaction between Agreement and Pronouns in the 2SG Present Tense in Dutch', ms., P.J. Meertens Institute, Amsterdam.

Huang, James. 1982. *Logical Relations in Chinese and the Theory of Grammar*, Ph.D. dissertation, MIT.

Huybregts, Rini. 1991. 'Allosteric Agreement in VSO Languages', in F. Drijkoningen and A. van Kemenade (eds.), *Linguistics in the Netherlands 1991*, Amsterdam: John Benjamins, pp. 81–90.

Jackendoff, Ray. 1997. *The Architecture of the Language Faculty*, Cambridge, MA: MIT Press.

Kaisse, Ellen. 1985. *Connected Speech: The Interaction of Syntax and Phonology*, Orlando: Academic Press.

Kayne, Richard. 2001. *Parameters and Universals*, Oxford: Oxford University Press.

Kenstowicz, Michael and Hyang-Sook Sohn. 1996. 'Phrasing and Focus in Northern Kyung-Sang Korean', *MIT Working Papers in Linguistics* **30**, 25- -47.

Kerstens, Johan. 1993. *The Syntax of Number, Person and Gender*, Berlin: Mouton de Gruyter.

Kisseberth, Charles and Mohammad Abasheikh. 1974. 'Vowel Length in Chi-Mwi:ni: A Case Study of the Role of Grammar in Phonology', in A.Bruck, R. Fox and M. La Galy (eds.), *Papers from the Parasession on Natural Phonology*, Chicago: Chicago Linguistic Society, pp. 193–209.

Lakoff, George. 1970. 'Global Rules', *Language* **46**, 427–439.

Legate, Julie Anne. 1999. 'The Morphosyntax of Irish Agreement', *MIT Working Papers in Linguistics* **33**, 219–240.

Manzini, Rita, and Anna Roussou. 2000. 'A Minimalist Theory of A-Movement and Control', *Lingua* **110**, 409–447.

McCarthy, John, and Alan Prince. 1993. 'Generalized Alignment', in G. Booij and J. van Marle (eds.), *Yearbook of Morphology 1993*, Dordrecht: Kluwer, pp. 79–153.

McCloskey, James. 1996. 'On the Scope of Verb Movement in Irish', *Natural Language and Linguistic Theory* **14**, 47–104.

McCloskey, James, and Kenneth Hale. 1984. 'On the Syntax of Person-Number Inflection in Modern Irish', *Natural Language and Linguistic Theory* **1**, 487–533.

Miller, Philip, and Ivan Sag. 1997. 'French Clitic Movement without Clitics or Movement', *Natural Language and Linguistic Theory* **15**, 573–639.

Mohammad, Mohammad. 1990. 'The Problem of Subject-Verb Agreement in Arabic: Towards a Solution', in M. Eid (ed.), *Perspectives on Arabic Linguistics I*, Amsterdam: John Benjamins, pp. 95–125.

Monachesi, Paola. 1999. *A Lexical Approach to Italian Clitics*, Stanford: CSLI Publications.

Müller, Gereon, and Wolfgang Sternefeld. 1993. 'Improper Movement and Unambiguous Binding', *Linguistic Inquiry* **24**, 461–507.

Muysken, Pieter. 1982. 'Parametrizing the Notion "Head" ', *Journal of Linguistic Research* **2**, 57–75.

Neeleman, Ad and Fred Weerman. 1999. *Flexible Syntax*, Dordrecht: Kluwer.

Nespor, Marina and Irene Vogel. 1986. *Prosodic Phonology*, Dordrecht: Foris.

Noyer, Rolf. 1998. 'Impoverishment Theory and Morphosyntactic Markedness', in S. Lapointe et al. (eds.), *Morphology and its Relation to Phonology and Syntax*, Stanford: CSLI Publications, pp. 264–285.

Odden, David. 1987. 'Kimatuumbi Phrasal Phonology', *Phonology Yearbook* **4**, 13–36.

Ouhalla, Jamal. 1991. *Functional Categories and Parametric Variation*, London: Routledge.

Paardekooper, Piet. 1961. 'Persoonsvorm en voegwoord', *De nieuwe taalgids* **54**, 296–301.

Papangeli, Dimitra. 2000. 'Clitic Doubling in Modern Greek', *UCL Working Papers in Linguistics* **12**, 473–498.

Plunkett, Bernadette. 1993. 'The Position of Subjects in Modern Standard Arabic', in M. Eid and C. Holes (eds.), *Perspectives on Arabic Linguistics V*, Amsterdam: John Benjamins, pp. 231–260.

Postal, Paul, and Geoffrey Pullum. 1982. 'The Contraction Debate', *Linguistic Inquiry* **13**, 122–138.

Pranka, Paula. 1983. *Syntax and Word Formation*, PhD dissertation, MIT.

Reinhart, Tanya. 1995. *Interface Strategies*, UiL OTS Working Paper, Utrecht University.

Riemsdijk, Henk van. 1998. 'Head Movement and Adjacency', *Natural Language and Linguistic Theory* **16**, 633–678.

Rizzi, Luigi. 1986. 'Null Objects in Italian and the Theory of *pro*', *Linguistic Inquiry* **17**, 501–557.

Roberts, Ian. 1997. 'Restructuring, Head Movement, and Locality', *Linguistic Inquiry* **28**, 423–460.

Roberts, Ian and Ur Shlonsky. 1996. 'Pronominal Enclisis in VSO Languages', in R. Borsley and I. Roberts (eds.), *The Syntax of the Celtic Languages; A Comparative Perspective*, Cambridge: Cambridge University Press, pp. 171–199.

Rouveret, Alain. 1991. 'Functional Categories and Agreement', *The Linguistic Review* **8**, 353–387.

Selkirk, Elizabeth. 1984. *Phonology and Syntax*, Cambridge, MA: MIT Press.

Selkirk, Elizabeth. 1986. 'On Derived Domains in Sentence Phonology', *Phonology Yearbook* **3**, 371–405.

Selkirk, Elizabeth and Tong Shen. 1990. 'Prosodic Domains in Shanghai Chinese', in S. Inkelas and D. Zec (eds.), *The Phonology-Syntax Connection*, Chicago: University of Chicago Press, pp. 313–337.

Selkirk, Elizabeth and Koichi Tateishi. 1991. 'Syntax and Downstep in Japanese', in C. Georgopoulos and R. Ishihara (eds.), *Interdisciplinary Approaches to Language: Essays in Honor of S.-Y. Kuroda*, Dordrecht: Kluwer, pp. 519–544.

Sproat, Richard. 1985. 'Welsh Syntax and VSO Structure', *Natural Language and Linguistic Theory* **3**, 173–216.

Sprouse, Rex, and Barbara Vance. 1999. 'An Explanation for the Decline of Null Pronouns in Certain Germanic and Romance Languages', in M. DeGraff (ed.), *Language Creation and Language Change*, Cambridge, MA: MIT Press, pp. 257–284.

Stowell, Timothy. 1981. *Origins of Phrase Structure*, PhD dissertation, MIT.

Stump, Gregory. 1984. 'Agreement vs. Incorporation in Breton', *Natural Language and Linguistic Theory* **2**, 289–348.

Szendrői, Kriszta. 2001. *Focus and the Syntax-Phonology Interface*, PhD dissertation, University College London.

Tokizaki, Hisao. 1999. 'Prosodic Phrasing and Bare Phrase Structure', in *Proceedings of NELS 29*, Amherst, MA: GLSA, pp. 381–395.

Travis, Lisa. 1984. *Parameters and Effects of Word Order Variation*, PhD dissertation, MIT.

Truckenbrodt, Hubert. 1995. *Phonological Phrases: Their Relation to Syntax, Focus, and Prominence*, Ph.D. dissertation, MIT.

Truckenbrodt, Hubert. 1999. 'On the Relation between Syntactic Phrases and Phonological Phrases', *Linguistic Inquiry* **30**, 219–255.

Uriagereka, Juan. 1995. 'Aspects of the Syntax of Clitic Placement in Western Romance', *Linguistic Inquiry* **26**, 79–123.

Vance, Barbara. 1997. *Syntactic Change in Medieval French: Verb Second and Null Subjects*, Dordrecht: Kluwer.

Vikner, Sten, and Bonnie Schwartz. 1996. 'The Verb Always Leaves IP in V2 Clauses', in A. Belletti and L. Rizzi (eds.), *Parameters and Functional Heads*, Oxford: Oxford University Press, pp. 11–62.

Weerman, Fred. 1989. *The V2 Conspiracy*, Dordrecht: Foris.

Williams, Edwin. 1998. 'Review of Zwart (1997)', *Journal of Comparative Germanic Linguistics* **1**, 263–272.

Zwart, Jan-Wouter. 1997. *The Morphosyntax of Verb Movement*, Dordrecht: Kluwer.

(Ackema)
University of Nijmegen
Dutch department
PO Box 9103
6500 HD Nijmegen
The Netherlands
<p.ackema@let.kun.nl>

(Neeleman)
Department of Phonetics and Linguistics
University College London
Gower Street
London
WC1E 6BT
UK
<ad@ling.ucl.ac.uk>