

Featureless Expressions: When Morphophonological Markers Are Absent

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Ackema and Neeleman (2003) discuss three phenomena that arise in the context of agreement and pronominals: agreement asymmetries, cliticization, and null subjects. They develop a unified analysis for these phenomena, claiming that they all involve a process of weakening within prosodic domains. While we agree with their important insight that the PF interface is responsible for some of these phenomena, we will argue against their weakening analysis. We provide arguments that agreement asymmetries cannot be uniformly analyzed as involving the same processes as phonological cliticization or null subjects. We instead propose that the observed asymmetries arise because of the alternative forms of spelling out features at the PF interface.

Keywords: PF merger, number, agreement asymmetries, weakening, prosodic domains

1 Introduction

Ackema and Neeleman (2003) isolate three phenomena that arise in the context of agreement and pronominals: agreement asymmetries, cliticization, and null subjects. They develop a unified analysis for these phenomena, claiming that they all involve a process of weakening within prosodic domains. While we agree with their important insight that the PF interface, rather than core syntax, is responsible for some of these phenomena, particularly the agreement asymmetries, we will argue against their weakening analysis. We provide arguments that agreement asymmetries, whereby a feature such as number is not morphophonologically realized, cannot be uniformly analyzed as involving the same processes as phonological cliticization, which involves a reduced form being realized in certain word orders, or null subjects. We instead argue for the analysis proposed in Benmamoun 2000, whereby the observed agreement asymmetries arise because of the alternative forms of spelling out agreement features that are available to the language at the PF interface. We also argue, on the basis of evidence that null pronominals can occur in preverbal position, that null subjects in Standard Arabic do not involve weakening. In addition, we raise questions about Ackema and Neeleman's account that makes cliticization contingent on VS order,

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based on diachronic evidence from Semitic languages, where the person agreement prefix arose from pronominal proclisis.

The centerpiece of Ackema and Neeleman's (henceforth A&N) analysis is agreement asymmetries such as the well-known asymmetry in Standard Arabic.

- (1) a. ?akal-at t-ṭaalibaat-u
ate-3FS the-student.FP-NOM
'The students ate.'
- b. *?akal-na t-ṭaalibaat-u
ate-3FP the-student.FP-NOM
- (2) a. t-ṭaalibaat-u ?akal-na
the-student.FP-NOM ate-3FP
'The students ate.'
- b. *t-ṭaalibaat-u ?akal-at
the-student.FP-NOM ate-3FS

Under the VS order (1), the verb agrees with the subject in gender and, most likely, person; but under the SV order (2), agreement involves all features including number. This asymmetry has been featured prominently within the context of Arabic syntax in particular and the syntax of agreement in general (Mohammad 1988, 1989, Benmamoun 1992, 2000, Bahloul and Harbert 1993, Fassi Fehri 1993, Plunkett 1993, Aoun, Benmamoun, and Sportiche 1994, 1999, Ouhalla 1994, Doron 1996, Roberts and Shlonsky 1996, and Harbert and Bahloul 2002, among many others). The debate has revolved around these questions:

- (3) a. Does the rich inflection on the verb reflect a genuine agreement relation, or is it an incorporated/phonologically merged pronominal?
- b. In languages (such as Arabic) that seem to have two separate agreement paradigms, one being weak or impoverished and the other exhibiting strong or full agreement, are there two separate types of agreement, or is there one type of agreement, with the differences emerging because of syntactic or morphophonological properties?
- c. What is the relation between word order, specifically the positions of the subject and the verb, and the observed agreement asymmetry? In other words, why is number agreement absent in the VS word order and present in the SV order, but not the other way around?

Earlier accounts for this asymmetry (e.g., Fassi Fehri 1988, 1993, Mohammad 1988, 1989, 1999) were based on one fundamental assumption: the only genuine agreement relation, if any, between the verb and the subject is the one that holds under the VS order, namely, agreement in gender (and person).¹ On the other hand, full agreement that obtains under the SV order is considered to be the realization of a null pronominal subject that has been incorporated into the verb.

¹ Actually, some accounts ignore agreement in gender and seem to assume that there is no agreement between the verb and subject in the VS order. The verb may, however, agree with an expletive (Mohammad 1988, Fassi Fehri 1993).

Agreement asymmetries are theoretically significant, and the question of just how it is that certain features are not phonologically realized can be approached in at least three distinct ways:

Account 1: The feature was never generated on the verb.

If the feature does not surface morphologically, the feature was never there to begin with. It would be wasteful to generate a feature that is not spelled out. If agreement only occurs in specific syntactic relationships, such as in specifier-head relationships or Agree, as in Chomsky 2000, and if the surface position matters, then the plural marker must never have been generated on the verb.²

Account 2: The feature was generated but deleted at a later stage.

The feature was there, but it was deleted under recoverability (for A&N, “recoverability” means being in the same prosodic domain as an agreeing terminal). When more than one feature is spelled out, and when the language provides an opportunity to delete a feature, one of the two features must be deleted, or the two features must be consolidated.³

Account 3: The feature was generated but can be realized in various ways.

This is similar to the second account, in that the features are generated on both terminals. The difference here is that redundancy is accounted for by alternative modes of spell-out instead of by feature deletion. Agreement information can avail itself of different modes of spell-out, either by an affix or by merger with a lexical element that carries the same feature as an inherent property.

Account 2 (generation then deletion) is similar to the approach taken by Aoun, Benmamoun, and Sportiche (1994). The question they tackle is this: suppose that the verb in the VS order has been in a position where it can overtly agree with the subject in number; then why isn’t number spelled out on the verb? Aoun, Benmamoun, and Sportiche propose that, after the verb moves past the subject to derive the VS order, the number feature is not retained and therefore is not spelled out in PF. However, number agreement between the verb and the subject *does* always take place. The verb’s number feature fails to be spelled out because that feature is lost after agreement, but before Spell-Out.⁴

A&N attack the problem from a similar perspective, proposing an account of PF weakening in which certain features may be deleted within prosodic domains.⁵ They use data from agreement

² This is A&N’s analysis for the VOS word order. Since in this configuration the verb and subject are in separate prosodic domains, but number information is still not expressed on the verb, they say that the number on the verb was never generated in the first place. The lack of number morphology could not just be due to a lack of agreement between the subject and the verb, since the verb and subject still agree in gender and person.

³ “Weakening,” as proposed by A&N, is not just the deletion of a feature. They also apply weakening to clitics and to account for pro-drop in the VS order. These might be considered as partial versus full consolidations. In cases of partial consolidation, only some of the features are weakened, or a pronoun is phonologically weakened into a clitic. In cases of full consolidation, the whole pronoun is discarded in the presence of the feature information on the verbal affix.

⁴ Aoun, Benmamoun, and Sportiche (1994) also consider why the lack of retention affects number only, and not gender and/or person. See also Bahloul and Harbert 1993 and Benmamoun 2000.

⁵ Aoun, Benmamoun, and Sportiche propose that the loss of agreement is sensitive to the syntactic position of the verb, whereas A&N claim that the crucial factor is being in the same prosodic domain in PF (though, in their system, traces are relevant to the computation of prosodic domains).

weakening in Dutch and Arabic, pro-drop in Old French and Arabic, and pronoun weakening in Middle Dutch and Celtic, and they implicate the edges of prosodic phrases, rather than syntactic constituency, as responsible for these agreement asymmetries, cliticization patterns, and null subjects.

That phonological phrases are not necessarily isomorphic to syntactic constituents has long been recognized, and the simple example sentences that A&N list from Jackendoff 1997:26 demonstrate the disjunction between these two representations.

- (4) a. [_{DP} a [_{NP}[_{AP} big] house]]
 b. [_φ[_ω a big] [_ω house]]

One of the main advantages of A&N's approach is that it explains the sensitivity of the distribution of agreement morphemes and pronouns to word order.⁶ It does so by capitalizing on what A&N assume to be the edge alignment properties of head-initial languages. These edge alignment principles are intended to capture the relation between the syntactic and the prosodic structure (Selkirk 1984, McCarthy and Prince 1993a,b), and A&N state a mapping rule for English, (5), in which the right edges of XPs arguably correspond to the right edges of prosodic phrases (ϕ s). A&N give the (partial) syntactic structure of a sentence (6a) and its correspondence to the (partial) prosodic structure of the sentence (6b) to show how this right-alignment works.

- (5) Align (\langle right edge, XP), (\langle right edge, ϕ)
 (6) a. [[A friend [of Mary's]] [showed [some pictures] [to John]]].
 b. {A friend of Mary's} {showed some pictures} {to John}.

They assume that Arabic, Irish, Old French, Celtic, and Dutch are also right-alignment languages; because of this property, these languages can form prosodic units containing the subject, which in turn results in the different types of weakening effect mentioned above. Since subjects are XPs, this approach explains in a principled manner why verb number is expressed in Arabic when the subject precedes the verb, but not when the subject follows the verb. A prosodic boundary interferes between the preverbal subject and the verb, and since the two lexical items are not within the same prosodic domain, the "weakening" rules of allomorphy proposed by A&N do not apply.

We believe that there are serious problems with A&N's account, but before we contrast the weakening account with our own, in the next section we present a detailed overview of A&N's arguments.

⁶ A&N succeed in showing languages that "weaken" in VS word orders, namely, head-initial languages with right-aligning prosodic edges. What they fail to show is the converse: head-final languages with left-aligning prosodic phrases that delete/weaken elements in SV word orders.

2 Overview of Ackema and Neeleman's (2003) Account

2.1 Dutch Second Person Singular Agreement Weakening

Dutch is similar to Arabic in showing different verbal morphology in VS and SV configurations. When the subject precedes the verb, the full agreement paradigm is expressed. (All data in this section are from A&N 2003 unless otherwise specified.)

- | | | | | |
|-----|------------|---------------|----------------|---------------|
| (7) | ik loop | 'I walk' | wij loop-en | 'we walk-P' |
| | jij loop-t | 'you walk-2s' | jullie loop-en | 'you walk-P' |
| | hij loop-t | 'he walk-3s' | zij loop-en | 'they walk-P' |

Since Dutch is verb-second (V2) in root clauses, when a constituent other than a subject is fronted, subject-verb inversion takes place. This affects one cell in the agreement paradigm: in inversion structures, the present tense, 2nd person singular verb ending *-t* is omitted, resulting in a form with no overt ending, homophonous with the 1st person singular verb.

- (8) a. [_{CP} dat [jij dagelijks met een hondje over straat loop-t]]
 that you daily with a doggy in the.street walk-2s
 'that you walk with a doggy in the street every day'
- b. [_{CP} Jij [_{C'} loop-t dagelijks met een hondje over straat t_v]].
 you walk-2s 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

The prosodic phrasing A&N assign to these clauses is as follows:

- (9) a. {dat jij} {dagelijks} {met een hondje} {over straat} {loop-t}
 that you daily with a doggy in the.street walk-2s
- b. {Jij} {loop-t dagelijks} {met een hondje} {over straat}.
 you walk-2s 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

They argue that the prosodic phrase created by the verb and its postverbal subject provides the necessary conditions for allomorphy to occur. The 2nd person singular verb ending is realized differently depending on whether it occurs preverbally or postverbally. The postverbal condition is shown in (9c). One feature (in this case, the [add] "addressee" feature) is deleted because the verb and the subject are in the same prosodic domain⁷ and because they agree with each

⁷ We will assume for the time being that A&N are correct in assigning their prosodic domains and that these prosodic domains are always present when the "weakened" form of the 2nd person singular verb is realized morphologically. This alternation also occurs both with the strong form of the pronoun, *jij*, and with the weak 2nd person singular pronoun, *je*, which is used mainly in spoken language. However, our biggest concern with this analysis is that it applies only to one cell in the verbal agreement paradigm. This alternation occurs only in present tense, only with the singular form, and only for the 2nd person ending. Because of the nature of 2nd person, this also occurs only when the verb form is immediately followed by a pronoun.

other.⁸ The rule A&N formulate is as follows:

- (10) *Dutch agreement weakening*
 {[V Prt Add] [D Prt Add]} → {[V Prt] [D Prt Add]}

It is clear that this is not a merely phonological operation, since the *-t* is lost only when the verb is followed by a subject, and not by an adjacent pronoun that is phonologically identical to the subject pronoun, such as the possessive pronoun *je*, as in (11b).⁹ (Data from Shetter 1994.)

- (11) a. Help je?
 help you
 ‘Do you help?’
 b. Help-t je broten?
 help-3s your brother
 ‘Does your brother help?’

2.2 Arabic Number Agreement Weakening

Modern Standard Arabic is a language in which an expressed morphological feature is lost regardless of person information. In this case, instead of the addressee feature not being spelled out in one cell of the agreement paradigm, the number feature is never expressed on the verb if it occurs before an overt lexical subject.

Some data from Standard Arabic, taken from Benmamoun 2000:24, show the asymmetry in the spell-out of the number feature on the verb, depending on the relative positions of the subject and the verb. In (12a), the verb precedes the subject, and the verb spells out the affix for a singular subject, but an affix that otherwise agrees with the subject in gender and person. (12b) illustrates that spelling out the number information on the verb is ungrammatical. (13a) and (13b) show that the situation is reversed when the subject precedes the verb; here, full agreement in person, number, and gender is obligatory.

- (12) a. ?akal-at t-ṭaalibaat-u
 ate-3FS the-student.FP-NOM
 ‘The students ate.’
 b. *?akal-na t-ṭaalibaat-u
 ate-3FP the-student.FP-NOM

⁸ For A&N’s analysis, whether the pronoun contains the [add] feature or not is irrelevant, since recoverability requires only that the modified element be in an agreement relation with another element within the prosodic domain, not that the target contain that specific feature.

⁹ However, sometimes this process of allomorphy overapplies and deletes the *-d* from the stem, as with the roots *rijden* ‘to ride’, *snijden* ‘to cut’, *houden* ‘to hold’, and *vinden* ‘to think’. (Data from Shetter 1994.) This produces the following alternation:

- (i) jij rijdt / rij jij
 jij snijdt / snij jij

In our view, the Dutch 2nd person singular weakening does not provide a strong enough basis for introducing a new linguistic process, “weakening”; what is required is a phenomenon that occurs across a wider range of linguistic forms.

- (13) a. $\text{t-}\text{taalibaat-u}$?akal-na
 the-student.FP-NOM ate-3FP
 ‘The students ate.’
 b. $*\text{t-}\text{taalibaat-u}$?akal-at
 the-student.FP-NOM ate-3FS

A&N propose a context-sensitive rule of allomorphy that is responsible for the agreement alternation in Arabic, similar to the rule they propose for Dutch. Since the right edge of the subject XP intervenes between the subject and the verb (14b), the verb and the subject are not in the same prosodic domain, so they are not candidates for PF weakening. However, when the subject follows the verb, A&N characterize the prosodic phrasing as in (14a), and the weakening rule in (15) can apply.

- (14) a. {V subject} {object}
 b. {subject} {V object}
- (15) *Arabic agreement weakening*
 $\{[V \text{ Pl } \dots] [D \text{ Pl } \dots]\} \rightarrow \{[V \dots] [D \text{ Pl } \dots]\}$

Because of the flexibility of word order in Arabic, it is possible to test the predictions of the PF weakening explanation by looking at how various word orders, and intervening objects, affect verb agreement patterns. PF weakening does predict the correct results in the Aux S V constructions, as A&N discuss. (Data from Benmamoun 1996:109.)

- (16) a. kaan-at $\text{t-}\text{taalibaat-u}$ ya-?kul-na
 was-3FS the-student.FP-NOM 3-eat-FP
 ‘The students were eating.’
 b. $\text{t-}\text{taalibaat-u}$ kun-na ya-?kul-na
 the-student.FP-NOM was-3FP 3-eat-FP
 b'. $*\text{kun-na}$ $\text{t-}\text{taalibaat-u}$ ya-?kul-na
 was-3FP the-student.FP.NOM 3-eat-FP

Within A&N’s analysis, Aux exhibits partial agreement in (16a), since the auxiliary and the subject are in the same prosodic domain, while the main verb exhibits full (number) agreement, since the right edge of the subject XP intervenes and excludes the main verb from the prosodic domain.¹⁰

Note that this analysis differs from that of Benmamoun (2000), which, although it also assumes that number features are generated in the VS order, departs from A&N’s and Aoun, Benmamoun, and Sportiche’s analyses by suggesting that number is actually retained in the VS order and that it is spelled out by the subject that merges with the verb instead of being spelled

¹⁰ A&N argue that this strong agreement pattern is true agreement rather than just involving an incorporated subject pronoun, since preverbal subjects do not need to be dislocated and subject topicalization structures do not show weak agreement. We concur with their analysis that the affixes spelling out agreement in Arabic are (synchronously) true agreement markers and not incorporated pronouns.

out by a number affix on the verb as well. Since number is an inherent feature of the subject, merger between the verb and the subject ensures that the number feature is spelled out.¹¹ Benmamoun suggests that the process of merger between the verb and the subject takes place in PF, which is where features are spelled out within the theory of Distributed Morphology (Halle and Marantz 1993). In section 3, we will discuss problems with A&N's account and show how these problems do not arise under a PF merger account of number spell-out.

2.3 Cliticization in Middle and Modern Dutch

The next set of data A&N tackle involves the second type of weakening—which differs from the previous type because it does not depend on the recoverability of features. Middle Dutch is a V2 language in root contexts that has both strong and weak pronoun paradigms and also a set of object pronoun clitics, which occupy a fixed position in the clause. In main clauses, these clitics attach to the verb fronted to C; but in embedded clauses, they attach to complementizers. As with Arabic and Dutch agreement weakening, the benefit of a prosodic account is that it explains why Middle Dutch has enclitics rather than proclitics. In Middle Dutch, the movement of the DP to the left edge of the IP creates the necessary context for the pronoun to be in the same prosodic phrase as the complementizer or the verb fronted to C, giving the following rule:

(17) *Middle Dutch pronoun weakening*

$$\{ \dots C \dots [D \text{ (Prt) (Add) } \dots] \dots \} \rightarrow \{ \dots \langle C \dots [D \text{ (Prt) (Add) } \dots] \rangle \dots \}$$

This rule, unlike the rule for the first two cases discussed, does not delete any agreement features. Instead, the prosodic status of the pronoun is altered owing to the presence of a host. The alternation cannot be simply phonological, since there is no plausible phonological relation between the full pronoun and the associated clitic,¹² so A&N consider this to be a prosodically conditioned rule of allomorphy.

Although Modern Dutch has lost object cliticization to C, pronouns may still be subject to cliticization when they are realized in the same prosodic domain as the complementizer or fronted verb. Modern Dutch does have one such subject pronoun, which has a corresponding clitic form that optionally surfaces when preceded by a verb or complementizer unless it is focused or contrastively topicalized. The 3rd person singular subject pronoun, *hij*, is realized as *-ie* instead when it is cliticized onto C, as in (18b). The reduced form cannot appear in its own prosodic domain or sentence-initially (18c).

- (18) a. {dat hij} {gisteren} {de afwas} {deed}
 that he_{STRONG} yesterday the dishes did
 ‘that he did the dishes yesterday’

¹¹ The fact that number is an inherent feature on the noun, and not on the verb, provides a natural explanation for why the number affix is deleted from the verb rather than from the subject in VS contexts.

¹² Instead, there would have to be additional rewrite rules, mapping from the full form of the pronoun to the reduced phonological form of the clitic. We question the classification of this type of process as a rule of allomorphy, since the full forms of the pronouns and the clitics do not seem to be phonologically related.

- b. {dat ie} {gisteren} {de afwas} {deed}
 that he_{CL} yesterday the dishes did
- c. *{Ie} {deed gisteren} {de afwas}.
 he_{CL} did yesterday the dishes

2.4 Cliticization with Celtic Subjects

In Irish, agreement is realized only when there is no overt subject, resulting in the analytic form of the verb.¹³ The relevant data are from McCloskey and Hale 1984.

- (19) a. Chuirfinn isteach ar an phost sin.
 put-COND-1S in on that job
 'I would apply for that job.'
- a'. *Chuirfinn mé isteach ar an phost sin.
 put-COND-1S 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
 'Owen would apply for that job.'

A common assumption is that the apparent agreement ending in (19a) is actually an incorporated subject pronoun, which is incorporated through syntactic head-to-head movement or through phonological/morphophonological movement. A&N exclude the syntactic analysis because of potential Coordinate Structure Constraint violations, and they rely instead on an analysis that involves phonological or morphological adjustment of the verb-pronoun sequence, which is very similar to the analysis they provide for Dutch *hij* encliticization.

The reason weakening can apply, according to A&N's analysis, is that Celtic has VS word order, which allows verbs and subjects to be realized in the same prosodic domains. The only difference between the Irish and Middle Dutch data lies in the specification of the host ([−N] rather than [V]) and in the fact that weakening seems to apply obligatorily in Irish.

(20) Irish pronoun weakening

$$\{ \dots [-N] \dots [D (\text{Prt}) (\text{Add}) \dots] \dots \} \rightarrow \{ \dots \langle [-N] \dots [D (\text{Prt}) (\text{Add}) \dots] \rangle \dots \}$$

Welsh behaves like Irish, except that the SV order is also possible in Welsh. In this case, if the verb is combined with a pronominal subject in the SV order, the pronoun cannot undergo weakening, and the verb must appear in its analytic form. If the pronoun is focused, overt doubling takes place, resulting in two instances of the pronoun, demonstrating that the synthetic form of the verb is not produced if the pronoun precedes the verb (A&N 2003:721).

¹³ The separate analytic form of the verb differentiates Irish from other pro-drop languages like Italian, which does not have a separate set of affixes for pro-drop structures.

- (21) Yfi oedd(*wn) yn cwyno.
 I-REDUP be.PAST(*1s) in complain
 ‘It was I that was complaining.’

2.5 Null Subjects in Old French

Pro-drop is attested in Old French only in yes/no questions or in contexts where an element other than a subject is fronted—both environments where the verb typically surfaces before the subject, since Old French is a V2 language. Two such sentences come from Adams 1987.

- (22) a. Oserai ___ le vous demander?
 dare.1s it you ask
 ‘Do I dare ask you?’
 b. Einsi corurent ___ par mer tant que il vindrent à Cademelée.
 thus ran.3P by sea until they came.3P to Cadmée.
 ‘Thus they ran by the sea until they came to Cadmée.’

These contexts motivate Adams to propose that pro-drop occurs only when the subject would immediately follow the verb, which is a right-adjacency condition. Since features are actually deleted, and not just expressed using reduced allomorphy (as in Celtic), A&N predict that Old French pro-drop should occur only when the pronoun would be right-adjacent to an *agreeing* head, rather than when it would just be right-adjacent to a *verbal* head. They claim that these are exactly the contexts in which pro-drop occurs in Old French,¹⁴ and the rule they write for Old French pro-drop thus refers to the need to have agreeing features for the purposes of ‘recoverability.’

- (23) *Old French pro-drop*
 $\{ \dots [X (PI) (Prt) (Add)] \dots [D (PI) (Prt) (Add) \dots] \dots \} \rightarrow \{ \dots [X (PI) (Prt) (Add)] \dots [\] \dots \}$

2.6 Null Subjects in Arabic

A&N analyze pro-drop in Arabic the same way they analyze pro-drop in Old French: they claim that pronominal subjects can fail to be spelled out if they follow an agreeing head.

- (24) *Arabic pro-drop*
 $\{ \dots [X (PI) (Prt) (Add) (Fem)] \dots [D (PI) (Prt) (Add) (Fem)] \dots \} \rightarrow \{ \dots [X (PI) (Prt) (Fem) (Add)] \dots [\] \dots \}$

Because features are being deleted, this rule is subject to the principle of recoverability; hence,

¹⁴ Old French pro-drop, like Middle Dutch cliticization, seems to be optional because it occurs only in specific, emphatic discourse functions. Pro-drop occurs when the pronoun would have followed the verb in nonemphatic contexts, which relates this both to A&N’s analysis of cliticization and to their discussion of feature deletion—if we accept this analysis of weakening, then Old French pro-drop seems to rely crucially on features from both.

A&N claim that it will apply only in VSO structures, not in SVO structures. This is difficult to test because omitting the subject of SVO and VSO structures results in a VO string. However, one environment will force an SVO order: immediately following the complementizer *?anna*.¹⁵

- (25) a. al-?awlaad-u qaal-uu ?anna-hum saafar-uu
 the-children-NOM said-3MP that-they departed-3MP
 ‘The children said that they departed.’
 b. *al-?awlaad-u qaal-uu ?anna saafar-uu
 the-children-NOM said-3MP that departed-3MP

A&N take this as evidence that pro-drop is impossible in obligatorily SVO cases. The main difference between Arabic and Old French is that in Arabic, pro-drop occurs almost across the board, while it is much more restricted in Old French.

2.7 Summary and Questions

The data compiled by A&N all share one feature: the alternations in number specification occur when they are right-adjacent to a host—either a complementizer, a verbal head, or an agreeing terminal. They vary greatly, however, in what is deleted. Sometimes, the verb loses a feature specification; other times, the pronoun is deleted entirely. In some cases, as in Dutch, the verbal alternation occurs only in one cell of the verb agreement paradigm; in other cases, it occurs consistently, as in Arabic, where number information is deleted from the verb whenever an overt lexical subject follows the verb. In some languages, these rules of allomorphy always apply whenever the subject follows the verb; in other languages, they are obligatory only in nonfocused contexts (Old French null subjects and Middle Dutch cliticization).

We will address two questions regarding A&N’s proposals: first, is weakening empirically and conceptually adequate to account for the agreement asymmetries that arise in Arabic and Dutch, and second, can these all be attributed to the same cause, or are they widely different phenomena?

3 Empirical and Conceptual Problems with Ackema and Neeleman’s Account

We see various empirical and conceptual problems with A&N’s weakening account and will provide an alternative explanation, building on the insight of Aoun, Benmamoun, and Sportiche (1994). We do not take issue with A&N’s analysis of weakening as it applies to cliticization,¹⁶ and particularly to the Celtic data. See McCloskey and Hale 1984 for an alternative analysis. We do take issue with their analysis as it applies to agreement asymmetries, particularly to the distribution of number agreement in Arabic and to null subjects. We will discuss each of these types of

¹⁵ We question A&N’s analysis of the complementizer and show later (in section 3.2) why these data do not require that pro-dropped subjects in Arabic are always deleted from postverbal position.

¹⁶ But see footnote 21 for a counterexample to A&N’s argument about cliticization in Middle and Modern Dutch. See also Roberts and Shlonsky 1996 for a different analysis of encliticization in Celtic.

weakening in turn. Then we will take up other empirical evidence—for example, from the construct state, which A&N do not discuss—that seems to us to be incompatible with their analysis.

3.1 *Verb-Subject Agreement with Aux and Wh-Phrases*

The first problem with the weakening analysis arises in *wh*-constructions. As is well known, full agreement in Standard Arabic is obligatory in questions and relative clauses.

- (26) a. *ʒaaʔa 1-ʔawlaadu llaḏiina naʒafi-uu*
 came.3MS the-children that passed-3MP
 ‘The children who passed came.’
 b. **ʒaaʔa 1-ʔawlaadu llaḏiina naʒafia*
 came.3MS the-children that passed.3MS
- (27) a. *ʔayy-u ʔ-tullaab-i naʒafi-uu*
 which-NOM the-students-GEN passed-3MP
 ‘Which students passed?’
 b. **ʔayy-u ʔ-tullaab-i naʒafia*
 which-NOM the-students-GEN passed.3MS

A&N assume that traces are present during the formation of prosodic domains. If the *wh*-variables in (26)–(27) are in postverbal position, it is not clear why the number feature on the verb is not weakened. Although A&N do not deal with agreement in the context of *wh*-constructions, they could certainly claim that the *wh*-operators proceed through the preverbal subject position, in which case their traces in the preverbal subject position should behave like regular preverbal subjects. If this is so, the trace should not be in the same prosodic domain as the verb and should not merge with the verb—and in turn no weakening of number on the verb should take place.¹⁷

According to Kenstowicz (1989), there is evidence that in some Arabic dialects *wh*-movement takes place from postverbal position. Support for the postverbal *wh*-questioned subject position in Bani-Hassan Arabic (BHA) comes from the distribution of *min* and *miin*, which are different forms of the word ‘who’. *Miin* occurs as the object of a verb or preposition (28a), and *min* occurs when its associated variable occupies the preverbal subject position (28b). (Data from Kenstowicz 1989:270; glosses added.)

¹⁷ A reviewer suggests that under A&N’s account, one could claim that prosodic domains are defined after PF deletion of the *wh*-trace. After deletion, the postverbal copy is no longer available, and merger is not an option. This is not radically different from our analysis. According to our analysis, *wh*-traces do not have a phonological matrix and therefore cannot spell out or be exponents of the number feature. The central issue is whether null elements can be included in prosodic domains in general, an issue we leave open since it is beyond the scope of this article. Recall, however, that the main problem with A&N’s account is that it treats the overt absence of number as a case of weakening, whereas for us the absence is simply one of the alternative ways of spelling out number. Therefore, under our analysis it does not matter whether traces are relevant to the definition of prosodic domains.

- (28) a. maʕa miin/*min raafi fariid al-suug
with whom went Fariid the-market
‘With whom did Fariid go to the market?’
b. min/*miin ɖarab miin/*min
who hit whom
‘Who hit whom?’

This is important because it provides a way of distinguishing between preverbal and postverbal extraction sites. If BHA extraction takes place from the postverbal position, then the operator should appear as *miin*, not as *min*, because it is lexically governed by the verb. This is shown to be the case in (29).

- (29) a. miin/*min fariid gaal innu kisar al-beeɖa
who Fariid said that broke the-egg
‘Who did Fariid say that broke the egg?’
b. min/*miin fariid gaal kisar al-beeɖa
who Fariid said broke the-egg
‘Who did Fariid say broke the egg?’

Sentence (29b) illustrates that, without *innu*, the distribution of *min* and *miin* reverses. Because *that*-trace effects don’t arise when *innu* is omitted, it is possible to extract the subject from the preverbal position. Kenstowicz proposes that, when the *wh*-word can be extracted from the preverbal subject position, this option is strongly favored to the exclusion of extraction from postverbal position. However, extraction from postverbal position is still possible, as shown in (29) and (30), so why isn’t the same option available in Standard Arabic, in which case partial agreement would be expected?¹⁸

- (30) a. wayy binit fariid gaal innu iɖtarat al-libaas
which girl Fariid said that bought the-dress
‘Which girl did Fariid say that bought the dress?’
b. wayy binit_i fariid gaal e_i iɖtarat al-libaas
which girl Fariid said bought the-dress
‘Which girl did Fariid say bought the dress?’
c. wayy binit_i fariid gaal innu iɖtarat e_i al-libaas
which girl Fariid said that bought the-dress
‘Which girl did Fariid say that bought the dress?’

¹⁸ One could argue that, in Arabic, the complementizer forces movement through preverbal position because it assigns accusative Case to the subject. However, the complementizer can be followed by an expletive in the context of a postverbal subject. Also, in the relative clauses in (26a) and (26b), the complementizer *llaiina* ‘that’ does not require an NP to follow it and doesn’t assign Case to the NP.

The question is easily answered under a PF merger account (such as that in Benmamoun 2000), since only overt elements are able to spell out number information. *Wh*-variables are null, and the only way to spell out number is via the number affix spelled out on the verb. Consequently, this lack of overt number information predicts full agreement.¹⁹

The second problem that challenges A&N's analysis involves agreement in the sequence Aux V S, where the subject is preceded by both the auxiliary verb and the main verb.

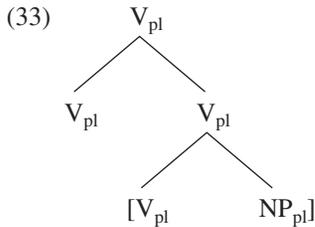
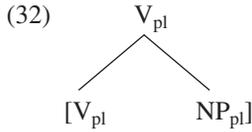
- (31) a. kaana ya-1ʕabu 1-ʔawlaad-u
 was.3MS 3M-play the-children-NOM
 'The children were playing.'
 b. *kaanuu ya-1ʕabu 1-ʔawlaad-u
 was.3MP 3M-play the-children-NOM
 c. *kaana ya-1ʕabuun 1-ʔawlaad-u
 was.3MS 3M-play.MP the-children-NOM

Neither verb in (31a) carries number agreement, and it is impossible to have number agreement on one of the verbs but not on the other. It is also clear that the two verbs are full verbs in the sense that neither is a reduced form of an otherwise full verb: other than number, they both carry all the relevant inflections. An explanation of the fact that the main verb in (31a) does not carry the number affix follows directly from A&N's analysis. The main verb and the subject form a prosodic domain that leads to the weakening of the number feature on the verb. The auxiliary, however, is not adjacent to the subject, so the two cannot form a prosodic unit. Moreover, the operation that forms prosodic units according to A&N is not recursive, which means that we should not expect the auxiliary to form a larger prosodic domain involving the first prosodic domain that includes the verb and the subject. Even if we allow recursion, it is not clear how weakening would proceed, given that the element adjacent to the auxiliary is the main verb whose number feature has been weakened. In that case, how would the auxiliary have access to the number feature spelled out by that prosodic domain?

Under Benmamoun's (2000) PF merger account, the main merger between the verb and the subject takes place for the purpose of spelling out the number feature of the verb. This operation can be recursive, very much like the compounding processes that merge lexical items. The merger of the verb and the subject leads to the spell-out of the number feature on the main verb (32),

¹⁹ Admittedly, the above evidence is only indirect because *wh*-movement does not have to work the same way in Standard Arabic as in the modern dialects. After all, the dialects differ from Standard Arabic in having full agreement regardless of word order. However, there are enough similarities between Standard Arabic and the dialects in the context of *wh*-movement and word order to warrant speculating that *wh*-movement probably works the same way in Standard Arabic and in the dialects because they all display the VS order and overt *wh*-movement, and they all have the resumptive pronoun strategy as an option. However, one must explain why extraction cannot take place from postverbal position in Standard Arabic but can take place from preverbal and postverbal positions in the modern dialects.

and the whole complex carries a number feature, which can be accessible to the auxiliary verb that merges with the main verb and the subject complex (33).²⁰



This recursive process of merger will be shown to be necessary and unavoidable when we discuss the construct state, whose agreement properties are in our view similar to those of the VS order.

3.2 Null Subjects

Another interesting agreement pattern in Arabic arises in the context of pronominal subjects. Recall that, according to A&N, pro-drop is handled through weakening of the pronominal subject, that is, by deleting the pronoun (or at least its phonological matrix). Like weakening with lexical subjects, this weakening requires the subject to be in postverbal position. The situation becomes more complex in pro-drop sentences with more than one verb. In this situation, both verbs must carry full agreement.

- (34) a. kun-na ya-ʔkul-na
was-3FP 3-eat-FP
'They were eating.'

²⁰ One reviewer raises the issues of licensing of collective predicates and binding in the context of agreement asymmetries. Absence of the number agreement affix on the verbal in the VS order affects neither the distribution of collective predicates (i) nor binding (ii) (see Aoun and Benmamoun 1999; data here from Standard Arabic).

- (i) itamaa marwan w karim
met.3MS Marwan and Karim
'Marwan and Karim met.'
- (ii) itamada l-awlaad alaa anfusihim
relied.ms the-children on themselves
'The children relied on themselves.'

These facts follow under the PF merger account. In both cases, the verb is plural rather than singular. The only peculiarity is that plural is spelled out by merger with the subject rather than by an affix.

- b. *kaan-at ya-ʔkul-na
was-3FS 3-eat-FP
- c. *kun-na ta-ʔkul
was-3FP 3F-eat

As far as we understand, for their analysis to derive the facts in (34), A&N must make one crucial assumption, namely, that the pronominal subject must be located between the auxiliary verb and the main verb in pro-drop structures involving both Aux and V.

(35) Aux pronoun Verb

Since the pronoun precedes the main verb in (35), it cannot form a prosodic unit with it, in which case no weakening should take place. However, the pronoun can form a prosodic unit with the auxiliary and therefore should be weakened.²¹ But this is not what happens.

Notice that null subjects in Arabic arise because of the VS order that puts the pronoun in a position where it can be weakened. The prediction is that there should be no null pronominals in the SV order, since preverbal position is not a weakening domain. One of A&N's arguments comes from the oft-cited distribution of the complementizer *ʔanna/ʔinna*. This complementizer assigns accusative Case to the subject that follows it, which can be a lexical NP (36a) or an accusative clitic (36b).

- (36) a. qaal-uu ʔinna 1-ʔawlaad-a saafar-uu
said-3MP that the-children-ACC traveled-3MP
'They said that the children traveled.'
- b. qaal-uu ʔinna-hum saafar-uu
said-3MP that-them traveled-3MP
'They said that they traveled.'

If the complementizer is not followed by an NP marked for accusative Case or by an accusative clitic, the sentence is ungrammatical. (Data from A&N 2003:726.)

- (37) a. al-ʔawlaad-u qaal-uu ʔanna-hum saafar-uu
the-children-NOM said-3MP that-they departed-3MP
- b. *al-ʔawlaad-u qaal-uu ʔanna ____ saafar-uu
the-children-NOM said-3MP that departed-3MP

A&N take this as evidence that null subjects are not allowed in preverbal position. It is not evident that this conclusion necessarily follows. The data may alternatively be taken to show that the

²¹ However, while the order in (35) is expected and is displayed in the context of lexical subjects, it is not clear why other orders are not possible. For example, can the pronoun follow both verbs, like a lexical subject? We are not certain, because A&N do not address the case where a lexical subject follows both verbs. Also, can the pronoun precede both verbs, like a lexical subject? A&N's analysis forces them to assume that it cannot, because by definition a null pronominal in the present context is a weakened one that is in a prosodic relation with the verb; that is, it must be in postverbal position.

complementizer must discharge its accusative Case. There are no phonologically null accusative pronominals in Arabic (in the sense of Rizzi 1986). Instead, accusative pronominals must all surface as clitics, as in (36b). Further support for this claim comes from the fact that the complementizer can be followed by a dislocated or topicalized nonsubject (Doron and Heycock 1998).

- (38) qaala muhammad-un ?inna zayd-an qad tajarra?a ?an yuqaabila-hu
 said.3M Mohammad-NOM that Zayd-ACC had dared.3MS to meet.3M-him
 l-mu?allim-u
 the-teacher-NOM
 ‘Mohammad said that Zayd had dared to be met by the teacher.’

This sentence shows that the complementizer must be followed by a lexical NP that can be assigned accusative Case. If the NP is a pronominal, it surfaces as an accusative clitic on the complementizer, like all accusative (and genitive) Case assigners in Arabic.

There is even more evidence that a null pronominal can occur in preverbal position. The evidence comes from the behavior of the quantifier *kull* (Shlonsky 1991, Benmamoun 1993, 1999). *Kull* behaves like a nominal head by assigning genitive Case and receiving Case that is assigned to the whole NP, as illustrated in (39).

- (39) a. kull-u t-tullaab-i žaa?-uu
 all-NOM the-students-GEN came-3MP
 ‘All the students came.’
 b. ra?ay-tu kull-a t-tullaab-i
 saw-1S all-ACC the-students-GEN
 ‘I saw all the students.’

As in many other languages such as English and French (Sportiche 1988), the NP that normally follows the quantifier can occur to its left. In that case, a clitic is attached to the quantifier (40).

- (40) a. t-tullaab-u kull-u-hum žaa?-uu
 the-students-NOM all-NOM-them came-3MP
 ‘All the students came.’
 b. ra?ay-tu t-tullaab-a kull-a-hum
 saw-1S the-students-ACC all-ACC-them
 ‘I saw all the students.’
 c. kitaab-u t-tullaab-i kull-i-him
 book-NOM the-students-GEN all-GEN-them
 ‘the book of all the students’

Now consider subject-verb agreement in the context of NPs containing the quantifier *kull*.

- (41) a. žaa?a kull-u t-tullaab-i
 came.3MS all-NOM the-students-GEN
 ‘All the students came.’

- b. *žaaʔa* *ʔ-tullaab-u* *kull-u-hum*
 came.3MS the-students-NOM all-NOM-them
 ‘All the students came.’

As shown in (41), whether the quantifier precedes or follows a lexical NP, the typical agreement asymmetry is evident—namely, no number agreement in the VS order. In the SV order, number is realized on the verb (see (39a), (40a)). When there is no lexical NP, the verb shows full agreement even when the quantifier follows the verb.

- (42) a. *žaaʔ-uu* *kull-u-hum*
 came-3MP all-NOM-them
 ‘All the students came.’
 b. **žaaʔa* *kull-u-hum*
 came.3MS all-NOM-them

Benmamoun (1999) argues that the facts in (42) occur because, when the quantifier carries the clitic, the QP behaves like an appositive phrase or modifier that modifies the preceding lexical NP if there is one. Otherwise, it modifies a null pronominal. In (42), there is a null pronominal, and therefore the verb cannot merge with it to spell out its number feature.

Interestingly, the quantifier plus clitic can occur in preverbal position, as illustrated in (43).

- (43) *kull-u-hum* *žaaʔ-uu*
 all-NOM-them came-3MP
 ‘They all came.’

If Benmamoun’s account is correct, the null pronominal must be in preverbal position, contra A&N’s claim. This in turn seriously challenges their weakening approach for null subjects.

These data from *wh*-constructions and auxiliary verbs, which can be handled within a PF merger account, show that the weakening account is empirically inadequate. A&N’s account of null subjects and cliticization also runs into problems.²² In the next section, we discuss facts that arise in the context of a well-known construction, the so-called construct state in Semitic, that displays similar feature distribution asymmetries and, in our view, receives the same account as other VS agreement asymmetries.

²² The agreement facts in Arabic also challenge A&N’s account of cliticization. In Arabic, the person morpheme, which derives historically from an incorporated subject pronoun (Gray 1934, Fleisch 1979), is a prefix on the imperfective form of the verb and a suffix on the perfective form of the verb. Benmamoun (2000) accounts for the distribution of the person morpheme by arguing that, because the verb raises in the perfective form and the subject remains lower, the pronoun is encliticized to the verb. On the other hand, because verb raising does not take place in the imperfective, the preverbal pronominal subject is procliticized to the verb. This implies that, at some earlier stage of the language, Arabic had both procliticization and encliticization, and that cliticization can also take place in the SV order. Within A&N’s analysis, the conditioning domains for these weakening rules should be the same for Arabic and Middle Dutch, which would predict that person information should have been reduced to an enclitic rather than a proclitic in Dutch. The fact that a proclitic appears rather than an enclitic challenges the account A&N provide for cliticization in Middle and Modern Dutch.

3.3 The Construct State

The construct state (CS), a construction involving two or more NPs in a genitive relationship that seem to form a prosodic unit (Aoun 1978, Ritter 1987, Borer 1988, 1996, Ouhalla 1991, Fassi Fehri 1993, Siloni 1997, Mohammad 1999, Shlonsky 2004), displays the feature distribution that we discussed in the context of subject-verb agreement. The definiteness feature, which we treat as an agreement feature (following Borer (1988) and Siloni (1997)), surfaces only on one member of the CS. (Data from Standard Arabic, unless otherwise noted.)

- (44) a. *kitaab-u t-ṭaalib-i*
 book-NOM the-student-GEN
 ‘the student’s book’
 b. **l-kitaab-u t-ṭaalib-i*
 the-book-NOM the-student-GEN
 c. *kitaab-u t-ṭaalib-i l-ḏadiid-u*
 book-NOM the-student-GEN the-new-NOM
 ‘the new book of the student’

That the noun *kitaab* in (44a) is definite is evident from the definite morpheme on the adjective that modifies it in (44c). As noted above, the CS seems to form a prosodic unit: specifically, the two members tend to be adjacent (45) and behave phonologically like a single word (Borer 1988, Benmamoun 2000), as shown in (45b) by vowel reduction in the first member and the shift of the main stress to the second member. (Data from Hebrew; Borer 1988.)

- (45) a. *ha-caṣif (shel ha-yalda)*
 the-scarf of the-girl
 ‘the girl’s scarf’
 b. *caṣif ha-yaldá*
 scarf the-girl
 ‘the girl’s scarf’

Borer (1988) has convincingly shown that the CS in (45) is not formed lexically. Benmamoun (2000) argues that it is not formed in the syntax either but instead is formed in PF. The merger of the members of the CS allows the last member to spell out the definiteness feature of the first member. The adjective has its own definiteness marker because it is not part of the CS complex; it can only have its definiteness feature spelled out by affixation, so the definiteness marker always occurs with adjectives that agree with the CS.

In this respect, the CS and the VS orders pattern together, and A&N could plausibly extend their analysis of number agreement in VS to the CS by extending the prosodic domain. However, the CS is highly recursive and can concatenate an infinite number of members as long as definiteness is marked on the last member.

- (46) *kitaab-u muṣallim-i ḥibn-i l-mudiir-i*
 book-NOM teacher-GEN son-GEN the-director-GEN
 ‘the director’s son’s teacher’s book’

Under our account, it is not problematic that merger of the members of the CS is recursive, since this is also found with compounding. Our only claim is that this type of compounding takes place in PF. In A&N's account, by contrast, prosodic domain formation that is a prerequisite to weakening is not a recursive process. A&N do not deal with the CS, but we believe that the CS facts are not compatible with their analysis because, following Selkirk (1984, 1995) and others, they assume nonrecursivity of prosodic units.²³ On the other hand, in Benmamoun's (2000) analysis, the account of the distribution of number agreement parallels the account of the distribution of (in)definiteness in the CS.

A similar problem arises when we combine VS order and the CS—that is, when the subject in the VS order is in a CS relation with the genitive NP within the CS.

- (47) *daxala muʃallim-uu t-ʔaalib-i*
 entered.3MS teachers-MP.NOM the-student-GEN
 'The student's teachers came in.'

If we extend A&N's analysis to the CS, we will be forced to assume that the noun *muʃallim* in (47) forms one prosodic unit with the preceding verb and another with the following noun. This is not what is usually attested with phonologically well-defined prosodic domains, where elements belong exclusively to one prosodic domain. On the other hand, under our analysis, the situation is straightforward. The verb merges with the CS DP. The number on the DP is that of its head, which is *muʃallim* in (47). Thus, the number feature on the verb can be spelled out by merger with the DP. Within the CS, the genitive DP and the head noun merge, allowing the former to spell out the definiteness feature of the latter. The mergers in question take place purely for morphological reasons, and the feature computation is what usually obtains in the context of regular morphological processes through feature percolation.

In the next section, we tentatively discuss some questions relating to the notion of weakening and the use of prosodic domains.

4 Prosodic Domains

So far, we have conceded that perhaps the VS strings in all the languages A&N deal with form prosodic domains. However, there are reasons to doubt whether the relevant notion is the prosodic domain rather than morphological compounding or rebracketing under adjacency. In other words, we are not certain whether the relevant notion is a phonological or a morphological domain.

First, we noted that the CS can be recursive, a property typical of word formation processes such as compounding. The same situation arises in the context of the Aux V sequence considered earlier, in which neither verb displays the number morpheme. As we pointed out, A&N assume that prosodic unit formation is nonrecursive.

Second, in both the CS and the VS order, some elements can intervene. In the case of VS order, an object or PP complement can intervene (48), and in the case of the CS, parentheticals can also intervene (49).

²³ Assuming an optimality-theoretic account, Selkirk (1995) treats nonrecursivity as a violable constraint.

- (48) a. saafara ?ilaa l-madiinat-i t-ṭulaab-u
 traveled.3MS to the-city-GEN the-students-NOM
 ‘The students traveled to the city.’
 b. qara?a l-kitaab-a t-ṭulaab-u
 read.3MS the-book-ACC the-students-NOM
 ‘The students read the book.’
- (49) ?ibnu wa-laahi muhammad-in
 son by-god Mohammad-GEN
 ‘by god, the son of Mohammad’

For the VOS order, A&N assume that number is not generated on the verb. However, it is difficult to evaluate this claim because A&N are not explicit about where the subject is located and why the same account cannot extend to the VSO order. In our view, the data in (48)–(49) can be accounted for by PF rebracketing to include some intervening elements. This idea is not original to us; Bobaljik (1994) has argued that in English, adverbs do not block the merger of V and T.²⁴

Overall, it is not at all clear to us what the relevant notion is. One possibility is prosodic domains, but then we need to account for cases where adjacency does not hold and where bracketing seems to require recursion. The attractive aspect of the prosody-based analysis is that it ties the head-initial bias of the asymmetries to the apparent tendencies of the languages in question to opt for rightward alignment. Another possibility is rebracketing for morphological reasons, the prosodic effects arising as a by-product of the rebracketing rather than its cause. We remain agnostic about what the right notion is, pending further research.

Regardless of whether prosodic factors are crucially involved in conditioning these asymmetries, the main point of this article is that the observed asymmetries where features seem to be deleted are actually instances of feature spell-out by merger with a lexical element. Pro-drop (or null subject) structures are different. Null subjects cannot be the result of deleting features of the pronoun, since the pronoun can occur in various positions, some of which lie outside the prosodic domain of the verb. Rather than introducing a new mechanism such as weakening, with all its empirical challenges, a more parsimonious explanation can be gained by calling upon the processes that are known to occur at PF: merger and rebracketing.

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²⁴ Moreover, there are cases of parenthetical elements in languages such as English that can break up words (McCarthy 1982).

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