Clitic-hood as a Phonological Correlate of Phase-Head Status

Alexandra Simonenko
McGill University

1. Introduction

This paper presents evidence supporting an expectation generated by the conjunction of two logically independent claims about the derivation: first, that a phase-head triggers its complement's spellout (Chomsky 2001), and second, that spelled-out material tends to preserve its phonological make-up, Dobler et al. (2009). The expectation is that phase-heads should have the prosodic status of "clitics", defined as adjuncts to a certain prosodic domain, Selkirk (1996). I show that this expectation is borne out in the Mainland North Germanic languages where whether or not a suffixal determiner behaves as a phonological clitic perfectly correlates with the presence in a language of the "double DP" structure. This fact is naturally accounted for assuming that what is at stake is the phase-head status of the head realized by the suffixal determiner.

Descriptively, definite expressions without modifiers in Norwegian, Swedish, and Danish consist of a nominal stem followed by a suffixal determiner, (1). Another shared feature is that if there is a prenominal modifier in a definite expression, the free-standing determiner appears in front of the modifier.[1] However, in this case in Norwegian and Swedish the suffixal determiner is retained on the noun, whereas in Danish it is obligatorily absent, as illustrated in (2)–(3). This has been widely known in the literature as the "double definiteness" or "double determination" contrast.

(1) hest-en/häst-en/hest-en
horse-EN
'the horse' [Norwegian/Swedish/Danish]

(2) den hvite/vita hest-en/häst-en
DEN white horse-EN
'the white horse' [Norwegian/Swedish]

(3) den hvide hest(*-en)
DEN white horse(***-EN**)
'the white horse' [Danish]

I argue that the contrast in double determination is due to the suffixal determiner realizing a phase-head in Norwegian and Swedish but not in Danish, on the hypothesis that double determination involves variable binding which is sensitive to phasal boundaries. Clitic-hood of the suffixal determiners in Norwegian and Swedish follows if they are spelled out after the noun had been spelled out, which, again, points to their phase-head status.

I suggest that this case belongs to a recently discovered larger family of contrasts in morphophonological inertness/activeness which can be effectively accounted for by appealing to the presence/absence of a phasal domain boundary (Svenonius 2005, Newell & Piggott 2006, Michaels To appear, Bouchard To appear). Moreover, I suggest that phasal domains must be invoked to order to replace the account of the morphophonological inertness of clitics as opposed to affixal activeness that relied on postlexical vs.

* I am very thankful to Lisa Travis, Glyne Piggott, Jessica Coon, and Bernhard Schwarz for sharing with me their expertise. I am indebted to John Christian Brannigan-Odehnal, Katarina Smedfors and Lise Hedevang Nielsen for their help with language facts. This works has benefited from the comments of anonymous WCCFL and CJL reviewers, audiences at McGill LingTea, CASTL LingLunch, Oslo Workshop on Clitics, and WCFFL 30.

[1] The preadjectival determiner can be omitted with a limited range of modifiers in Swedish, and, to a lesser extent, in Norwegian. The condition on its omission in Swedish is discussed in Simonenko (To appear).

 Proceedings of the 30th West Coast Conference on Formal Linguistics, ed. Nathan Arnett and Ryan Bennett, 313-323. Somerville, MA: Cascadilla Proceedings Project.

lexical distinction, since the latter is untenable in those frameworks that take syntax to be responsible for word formation. Specifically, I propose that clitic-hood is a phonological manifestation of the phase-head status.

2. Phonological inertness/activeness of the suffixal determiner

In this section I show that the suffixal determiner is phonologically inert with respect to a number of processes affecting the noun in Norwegian and Swedish (illustrated for Swedish) but not in Danish. Namely, it is inert with respect to pitch accentuation, vowel syncope, and vowel lengthening (Swedish only), whereas in Danish it actively participates in vowel syncopation and is capable of triggering *stød* on the root.

Norwegian and Swedish have contrastive pitch accentuation: each word has one of the two distinct pitch contours, for brevity referred to as Accent 1 and Accent 2 although their realization varies from dialect to dialect. In general, monosyllables have Accent 1, whereas bisyllables Accent 2. In particular, adding the plural suffix changes the pitch contour of the noun.

(4) *häst* [ˈhɛ́sːt] ‘horse’ Accent 1
hästar [ˈhɛ̀sːt**ar**] ‘horses’ Accent 2

However, adding the suffixal determiner does not:

(5) *hästen* [ˈhɛ́sːtə**n**] ‘the horse’ Accent 1

In Norwegian and Swedish vowels can alternate with a zero variant before a sonorant when an unstressed syllable follows.[2] The plural suffix can trigger syncope, but the determiner cannot:[3]

(6) *aftnar* /afːtɔn+**ar**/ → [afːtn**ar**] ‘evenings’ (Eliasson 1972:178)
aftonen /ˈafːtɔn+**n**/ → [ˈafːtɔnə**n**] ‘the evening’ (Cf. *[afːtnən])
pansaret /ˈpanːs**a**r+ə**t**/ → [ˈpanːs**a**rə**t**] ‘the armour’ (Cf. *[panːsrət])

Finally, in Norwegian and Swedish under primary or secondary stress a vowel is long if in an open syllable or if followed by a single consonant within a morpheme (generalization known as complementary length principle). In Swedish the plural suffix causes appearance of a secondary stress and, therefore, root vowel lengthening. The suffixal determiner does not have this effect.

(7) *vardagar* /ˈvaːɖ**a**g+**ar**/ → [ˈvaːˌɖ**aː**g**ar**] ‘weekdays’
vardagen /ˈvaːɖ**a**g+ə**n**/ → [ˈvaːɖ**a**gə**n**] ‘the weekday’

Strikingly, we do not find any patterns of this sort in Danish. Instead, the Danish suffixal determiner is active with respect to at least two phonological processes affecting the noun and the plural suffix: vowel syncopation and *stød*.[4]

In Danish both the plural suffix and the suffixal determiner can trigger schwa-syncopation in the root:

(8) *aftener* /ˈɑfdən+ər/ → [ˈɑfdnər] ‘evenings’ [http://ordnet.dk/]
aftenen /ˈɑfdən+ən/ → [ˈɑfdnən] ‘the evening’ [http://ordnet.dk/]

Creaky-voice-like phonation *stød* appears in a stressed syllable with either a) long vowel or b) short vowel immediately followed by a sonorant consonant followed by another consonant. This requirement is traditionally known as “stød basis”. The (productive) plural suffix can induce it on the root, and so can

[2] In Riad (1992) the principle behind the alternations is formulated as preference of a disyllabic trochee over the dactyl (no ˈσσσ).

[3] Alternations of the type *fönster/fönstret* ‘window/the window’ are not considered syncopation because the root has Accent 1, suggesting its underlying monosyllabicity. Compare Accent 2 form *spegel-spegeln* (‘mirror’) with Accent 1 form *segel-seglen* (‘sail’).

[4] Danish does not have phonological pitch accentuation.

the suffixal determiner:[5]

(9) *balkoner* /bal'kʰʌŋ+**ər**/ → [bal'kʰʌŋ**ʔɐ**] 'balconies' Basbøll (2003: 7)
balkonen /bal'kʰʌŋ+**ən**/ → [bal'kʰʌŋ**ʔŋ**] 'the balcony'

To give an interim summary, in Norwegian and Swedish the suffixal determiner is outside of the domain of 1) accentuation 2) root vowel syncopation 3) stress assignment and root vowel lengthening (Swedish), unlike the plural morpheme. In Danish it is within the domains of 1) stød assignment 2) root vowel syncopation. Within the Scandinavists' tradition, based on the pitch accent and stress assignment patterns, Lahiri et al. (2005a), Kristoffersen (2006), and Morén (2007) call suffixal determiners in Norwegian and Swedish clitics. The data on root vowel lengthening and root vowel syncopation point in the same direction. The next question to ask, if we want to delve deeper into this contrast, is: what is the theoretical status of these clitics?

3. Where does phonological inertness come from?

Analyzing phonological inertness of the suffixal determiner, Lahiri & Wheeldon (2011:21–23) suggest that it is "attached to the prosodic word after accent assignment, while the plural suffix is attached before", or, schematically:

(10) **[/stem/-(PL)**$_{accent}$**]**ω**=DEF**

Concerning inertness with respect to stress shifts, Lahiri et al. (2005b) propose that the suffixal determiner is added after stress assignment.[6] This paves way for the following working definition of a clitic.

(11) CLITIC-HOOD: To be a clitic means being outside of a phonological domain in which some process operates, in particular, outside of the primary Prosodic Word. These are **adjuncts to PWord** or affixal clitics in the typology of Selkirk (1996).[7]

The general assumption underlying this definition is that exemption from a process means being outside of the domain where the process operates (unless it can be demonstrated that the element is exempt due to independent factors such as its own phonological make-up). An analysis along these lines was given in Kabak & Vogel (2001) and Newell (2007) for the Turkish copula *-y* which is analyzed as adjoined to the PWord containing the root to account for its inability to receive stress. Lahiri et al. (2005b) assume that accent and stress are word-level phenomena in Norwegian and Swedish. Therefore, elements inert with respect to these processes are outside of at least the primary PWord. Van der Leeuw (1997) suggests that cross-linguistically (possibly all) clitics are PWord-adjuncts. Bermúdez-Otero & Luís (2009) analyze European Portuguese pronominal enclitics as PWord-adjuncts to account for why they are inert with respect to stress, mid-vowel centralization, and hiatus resolution by deletion.

Why do some elements become clitics in the sense of PWord-adjunction? In traditional phonology-oriented approaches clitics are distinguished from affixes in terms of post-lexical vs. lexical attachment (Van der Leeuw 1997 for an overview), as this quote from Anderson (2011:2006) illustrates: "[F]ully inflected words, structured as PWords, appear in the prosodic structure projected from the syntax. Clitics appear in this structure either as prosodically deficient lexical items ... or as 'special clitics' introduced (as phrasal morphology) into that structure at a point where non-clitic material is already present". That is, the primary PWord is assumed to enter syntax ready-made, and then the inertness of a clitic follows from its attaching to the primary PWord after certain "lexical" processes had applied.

[5] Of course, this happens only if the addition of the suffixal determiner creates stød basis, which depends on the nature of the root's final segments. Also, roots that already have *stød* normally do not lose it in the presence of the suffixal determiner (Gress-Wright 2008 a.o.).

[6] The adjectivizing suffix *-isk* in Norwegian and Swedish, being inert for accentuation just as the suffixal determiner is, is also exceptionally (for a super heavy syllable at the right edge of a word) exempt from stress, Kristoffersen (2007).

[7] Cf. definition of clitics from Anderson (2011: 2015): "linguistic elements lacking a prosodic structure at (or below) the level of PWd."

In any framework in which words are built in the syntax and not in the lexicon, this view cannot be readily accommodated. Instead, we have to ask the question of whether PWord-adjunction is an "accident" of spellout or whether it is a manifestation of some independently relevant grammatical property. In what follows I try to connect the analysis of clitics as PWord-adjuncts to the emerging body of research suggesting that phonologically opaque domains are created as a result of the by-phase nature of syntactic derivation which constrains phonological interaction between morphemes. The primary data this hypothesis best accounts for and is therefore supported by are those contrasts in phonological behaviour of exponents that are unexplainable simply in terms of their phonological make-up and environment, such as "inner" and "outer" causative markers (Michaels To appear for Malayalam, Svenonius 2005 for a number of languages), plural and tense suffixes in polysynthetic languages (Newell & Piggott 2006 for Ojibwe), the possessive suffix in alienable and inalienable constructions (Dobler To appear, Piggott & Travis 2012 for Lango, Objibwe, Nivkh). The general pattern is that one exponent participates in certain processes affecting the stem, whereas the other one, whose phonological make-up is no less suitable for that, is inert with respect to the same processes. The overarching line of analysis of these contrasts is that a spellout boundary, introduced by a phase-head, prevents the interaction of an exponent (outer causative suffix, possessive suffix in alienable possession constructions, tense marker etc.) with the stem in the way the phonological rules would predict. Conversely, the ability to phonologically interact with the stem is analyzed as originating from an exponent being spelled out on the same cycle as the stem. As a preliminary hypothesis, which I develop after having considered the morphosyntactic pattern, I argue that a spellout boundary is also responsible for the inertness of the suffixal determiner in Norwegian and Swedish and that, in contrast, in Danish there is no such boundary.

4. Double determination contrast

This paper started with an observation that phonological properties of the suffixal determiners divide Mainland North Germanic the same way the double determination does. In this section I propose a simple analysis of the double determination contrast that appeals to the same property that was invoked in the discussion of the clitic-hood, namely the property of introducing a domain boundary.

It was argued in Kester (1993), Anderssen (2005), Lohrmann (2008) that double determination, (12)–(13), involves a double DP, where the lower determiner position is realized as a suffixal determiner and the higher one as a free-standing determiner.

(12) Jag tycker om den vita häst-en.
I like of DEN white horse-EN
'I like the white horse.' [Swedish]

(13) Jag liker den hvite hest-en.
I like DEN white horse-EN
'I like the white horse.' [Norwegian]

While this approach works well for Norwegian and Swedish, it is not immediately applicable to Danish where double determination is ungrammatical, (14).

(14) Jag kan godt lide den hvide hest(*-en).
I can well like DEN white horse(*-EN)
'I like the white horse.' [Danish]

A number of different accounts have been proposed to account for the complementary distribution of the suffixal and the free-standing determiners in Danish. On the influential account of Santelmann (1993), the free-standing determiner is inserted in D in the presence of an adjective because the latter blocks the movement of the noun to D which would result in suffixation.[8] A more recent treatment was proposed in Leu (2008) who argued that the free-standing determiner is part of the extended adjectival projection that occupies SpecDP, and that in the presence of this projection D cannot host another definite element, that is, the suffixal determiner.

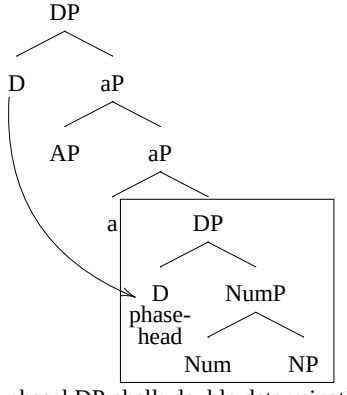
As to the question of *why* Danish is different from Norwegian and Swedish, Embick & Noyer (2001) proposed that the noun in Norwegian and Swedish but not in Danish has to be always marked for definiteness, that is, have a suffixal determiner, whereas Julien (2005) argued that in Norwegian and

[8] The analysis of suffixation as the result of N-to-D movement has even a longer tradition, at least since Taraldsen (1990).

Swedish the suffixal determiner realizes a lower head than the free-standing one, whereas in Danish both realize the same head. However, so far this contrast has not received an explanation that has some independent support.

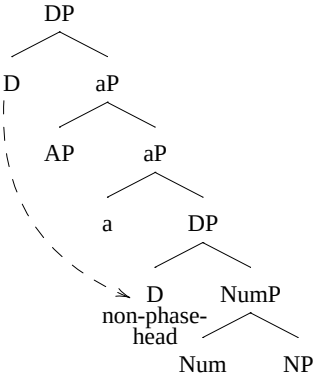
In what follows I argue that the contrast in question stems from a qualitative difference between functional heads realized by the suffixal determiner, which has repercussions for all levels of the grammar. Specifically, I propose that the suffixal determiner is a exponent of a phase head D in Norwegian and Swedish, whereas in Danish it is an exponent of a non-phase head D_n. That the suffixal determiner is not associated with a phase-boundary in Danish makes it impossible for it to co-occur with another determiner for binding theoretic reasons to which I turn shortly. The structural contrast underlying the contrast in double determination in schematized below, where a mono-phasal DP-shell in (16) corresponds to an ungrammatical double determination configuration.

(15)



Bi-phasal DP-shell: double determination

(16)



Mono-phasal DP-shell: *double determination

4.1. The ban on double determination in Danish

Along with the accounts relying on Santelmann's (1993) insight that the free-standing determiner appears in order to realize D when the movement of the noun is blocked, there has been a prominent line of research associating the appearance of the free-standing determiner with some "need" of the adjective. In particular, Kester (1993) argued that the free-standing determiner is merged to license the (definite) adjectival ending, which, being anaphoric in nature, needs to be bound. Similarly, Katzir (2011) proposes for Danish that the *-en/-et* part of the free-standing determiner *den/det* licenses occurrences of the definite feature on the adjective and on the noun (realized as the "weak" ending -e and a zero respectively). In a definite expression without modifiers it is the suffixal determiner *en/et* which licenses the definite feature on the noun. Katzir's licensing relation crucially relies on the relation of c-command.

I develop this line of analysis proposing that this syntactic licensing is in fact a case of anaphoric binding (anaphor and pronoun-binding). (I will touch briefly below on the exact semantic nature of the pronominal elements involved in this case.) Once this parallel is made, we get a straightforward account for when and why two "licensors" in the terminology of Katzir may not be able to co-occur: they are prevented from co-occurring in case they are part of the same binding domain, which constitutes a principle B violation.[9]

What is the binding domain in this case? There is a number of recent works suggesting that it is possible to derive binding domains from the cyclic nature of the derivation, in particular, from phases. Bader (2011) argues that the relevant domain for anaphoric binding is a phase: local binding occurs if the anaphor hasn't been spelled out when the antecedent is merged.[10] A similar idea is developed in Rooryck & Wyngaerd (2011). Despić (2011) argues that the difference in anaphor behaviour between

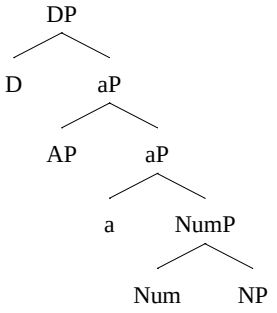
[9] Katzir (2011) accounts for the absence of double determination in Danish by appealing to Economy which rules out two licensors. However, for languages with double determination he proposes that the Economy might be set aside because "the preadjectival definiteness marker ... does not have the noun within its licensing domain", which is close to what I will say in terms of phasal binding domains.

[10] Bader (2011) treats DPs as non-phases for reasons unrelated to binding, pointing out that with respect to binding her account does not make different predictions than an account that treats DPs (or DP internal constituents) as phases.

English and Serbo-Croatian (as well as a number of other contrasts) stems from nominal expressions being DPs in the former, but NPs in the latter. Despić associates this difference with the phasal status of DPs and non-phasal status of NPs.

I propose that a similar contrast holds between Norwegian and Swedish on the one hand and Danish on the other. Namely, in Norwegian and Swedish the suffixal determiner realizes a phase-head D. The phasal DP, spelled out on the final phase-spellout cycle, constitutes a binding domain within which a pronominal component associated with the suffixal determiner is free, as in (15). When a higher D is merged, it binds the lower one from outside of the binding domain in question. In Danish, in contrast, the suffixal determiner realizes a non-phase head D_n. If a higher D head were to be merged, the suffixal determiner would be bound (again, in the sense I turn to shortly) by the free-standing one within a binding domain, as in (16). Therefore, Danish has to pursue an alternative strategy, namely, not to merge D_n in the presence of a modifier and a higher D, (17).[11]

(17)

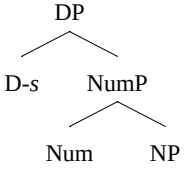


4.2. Semantic underpinnings: What gets bound

The argument in the previous section relied on the assumption that there is something in the nature of a determiner that makes it subject to binding conditions. There seems to be a consensus in the literature that natural language quantifiers, of which definite determiners are one kind, have to be associated in some way or another with a domain restrictor, since very rarely quantification is meant to apply to all the individuals in the scope of a quantifier (e.g. *the dog* is not usually meant to refer the unique dog in the world, and *every student* to refer to every student in the world, see Heim (2008) for an overview).

Following Schwarz (2009), I make such domain restrictors part of the syntactic representation in the form of a situation pronoun *s* adjoined to the determiner, as schematized in (18).

(18)



The pronoun *s* in (18) is a variable over situations which may be either free, in which case it is assigned a value by the Context, or it may be bound, in which case the binder has to be outside of the relevant binding domain.

The determiner itself, according to Schwarz (2009), is a function from situations to a function which maps a property P to a unique individual x that has the property P is the situation s, as in (19). The latter function is defined just in case there exists exactly one individual with the property P in the situation s.

(19) [[def. determiner]] = λs . λP : $\exists$!x(P(x)(s)) . ιx[P(x)(s)]

[11] The "lookahead" problem with this derivation is no more serious than with any other hypothesis that relies on binding conditions to rule out certain configurations involving pronouns. One way to model how the grammar "knows" that the higher D is going to be merged is by associating each phase with a particular lexical subarray and by ruling out co-occurrence of co-indexed pronouns or pronoun-containing elements in the subarray.

Schwarz (2009) accounts for cases of domain co-variation by arguing that a situation pronoun can be bound by a higher operator or by a higher situation pronoun. The only thing that I add to this approach is that binding domains are relevant for these pronouns in the same way they are relevant for more familiar personal pronouns.

4.3. Additional evidence

The proposal that in Danish the suffixal determiner realizes a non-phase head D_n predicts that if there are any properties which distinguish phasal nominal expressions from non-phasal ones, Danish nominal expressions should pattern with the latter. There is some preliminary evidence that this is indeed so.

First, Danish contrasts with Swedish with respect to the use of a long-distance anaphor *sig* in "picture DPs". In both languages *sig* cannot be used as a co-argument with its antecedent with non-reflexive verbs:

(20) *att Peter har alltid beundrat sig.
that Peter has always admired himself
Intended: '... that Peter has always admired himself.' [Swedish]

(21) *at Peter har altid beudret sig.
that Peter has always admired himself
Intended: '...that Peter has always admired himself.' [Danish, Vikner (1985: 8)]

Interestingly, the embedding of *sig* within a "picture DP" makes co-occurrence with an antecedent within the same predication grammatical in Swedish, but not in Danish.

(22) att Peter tog fem bilder av sig.
that Peter took five pictures of himself
'...that Arvid took five pictures of himself.' [Swedish]

(23) *at Peter tog fem billeder af sig.
that Peter took five pictures of himself
Intended: '...that Peter took five pictures of himself. [Danish, Vikner (1985: 41)]

Note that it's not the case that *sig* in Danish cannot be a complement of a preposition:

(24) at Peter så fem billeder af sig i avis-en
that Peter saw five pictures of himself in newspaper-EN
'...that Peter saw five pictures of himself in the newspaper.' [Danish, Vikner (1985: 39)]

Vikner (1985) accounts for the contrast between (23) and (24) arguing that in the latter there is a PRO, non-coreferential with *sig*, in SpecNP which makes NP a binding domain within which *sig* is free. In the former, he argues, there is no PRO in SpecNP and the binding category is the whole sentence, as a result of which *sig* is bound within its binding domain. By this reasoning, the nominal expression is always a binding domain for *sig* in Swedish. These are very preliminary observations and further work needs to be done to establish whether they indeed point to the determiner head in Danish not having a phase-head status.

Second, Danish bare plurals can receive kind interpretation, unlike in Norwegian or Swedish where a suffixal determiner is required. This fact seems to point to the presence in Danish of a silent type-shifting operation which does the job of the suffixal determiner in Norwegian and Swedish, which, in turn, points to a different semantic status of this morpheme in Danish.

(25) Elg-e er truet av udryddelse.
elk-PL is threatened of extinction
'The elk is threatened of extinction.' [Danish, Halmøy (2010: 73)]

(26) #Elg-er er truet av udryddelse.
elk-PL is threatened of extinction
Intended: 'The elk is threatened of extinction.' [Norwegian, Halmøy (2010: 73)]

(27) #Älg-ar är hotade.
elk-PL is threatened
Intended: 'The elk is threatened.' [Swedish, Halmøy (2010: 73)]

5. Clitic-hood and its syntactic correlates

In this section I unify syntactic and phonological analyses, arguing that it is the presence or absence of a phase-head that is relevant for both types of contrast.

In section 2 I hypothesized that the lack of phonological interaction between the suffixal determiner and the noun, modelled in prosodic terms as PWord-adjunction on the assumption that phonological processes in question operate within PWord domain, was due to the presence of a spellout boundary. However, neither this hypothesis, nor other accounts along these lines that appeal to spellout domains when dealing with phonological inertness, have made it clear *why* a spellout boundary should have that effect. As a starting point in an attempt to answer this question let us consider the principle in (28) from Dobler et al. (2009).

(28) Phonological Persistence: a tendency to retain the phonological form that has been previously mapped to each individual phase constituent during later computation; i.e., the phonology assigned to [spelled-out material] will be maintained as much as possible during subsequent computation.

This hypothesis brings us a step closer to the answer: the spelled out material being phonologically "frozen", any element from outside would not be able to phonologically interact with it. However, clitics are more than just an element outside of a certain domain. They are distinct from bona fide affixes in being exempt from certain phonological processes, but they are also distinct from independent prosodic words in that do belong together with their "host" with respect to some other word-level phenomena. Consider the following data.

First, the suffixal determiner (common gender) is realized as [n] when attached to words ending in a vowel or bisyllabic words ending in a liquid with penultimate stress:

(29) *konsuln* /ˈkɔnːˌsyːl+n/ → [ˈkɔnːˌsyːln] 'the consul'

In other cases, including monosyllabic words ending in a liquid, it is realized as [ən]. Given that neuter gender suffix is realized as [ət] in all contexts except for a final unstressed [e], the schwa in the common gender suffix is an epenthetic vowel, emerging when it does not conflict with syllabification requirements.[12]

Second, whether /e/-epenthesis happens in Accent 1 roots (resolving a complex coda) depends on the form of the suffixal determiner.

(30) *fönstret* /ˈføːnstr+ət/ → [ˈføːnstrət] 'the window', cf. uninflected form *fönster* [ˈføːnst**e**r]

(31) *spegeln* /ˈspeːgl+n/ → [ˈspeːg**e**ln] 'the mirror'

Attached to a monosyllabic root, [ət] makes epenthesis unnecessary, since it creates a second syllable, whereas [n], consisting of a single consonant, does not resolve the complex coda, and the root receives an epenthetic vowel. This, again, indicates that the root's syllable structure is sensitive to the suffixal determiner.

I propose that one syntactic position which results in this ambivalence (being inert with respect to some processes and active with respect to others) is the position of a phase-head: it is spelled out outside of the primary PWord, but still makes part of the phasal maximal projection, which, I argue, is the last cycle of PWord spellout. In particular, I propose that phasal spellout proceeds in two main cycles:[13]

[12] This model is proposed in Riad (2003). Along the same lines, Löfstedt (2009) proposes perception driven schwa-epenthesis in the common gender suffix.

[13] The final DP cycle might be a result of VP spellout assuming the verb moves out to v. Cf. the model of Kratzer & Selkirk (2007) who proposed that spellout affects the highest XP (=DP) within the phrase that is being spelled out to account for the verb-object asymmetry with respect to major phrase stress.

(32) If X is a phase-head, and YP is the complement of X, then YP corresponds to the primary spellout domain and XP corresponds to the final spellout domain within this phase.

In addition, in parallel to (28), I propose that the prosodic structure resists "re-parsing":

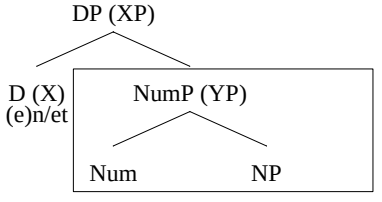
(33) Prosodic Persistence: a tendency to retain prosodic structure that has been assigned to spelled out material during subsequent computation.

Let us see how a hypothetical phasal constituent XP is mapped onto the prosodic structure. First, YP is sent to spellout and assigned syllable, foot and prosodic word structure. Then the whole XP (that is, YP together with phase-head X) is sent to the final spellout cycle. By (33), YP resists re-parsing. This means that the prosodic parser deals with two prosodic constituents of different types – of the type σ (syllable) and of the type ω (prosodic word). Two possible ways of parsing this pair is either via PWord recursion or by grouping them into the next level constituent, Prosodic Phrase. Adjunction to a prosodic domain means recursion of the relevant domain, which, in Optimality Theoretic terms, violates the Non-Recursivity constraint militating against prosodic constituents dominating constituents of the same type. However, Anderson (2011:2012) points out that "[t]he affixal clitic structures that are actually found indicate that Exhaustivity(PPhrase) outranks Non-Recursivity(PWord), that is, building a recursive PWord preserves the existing prosodic structure, and avoids having lower-level constituents (syllables, feet) directly dominated by a PPhrase."

This leaves the head X with the status of a PWord-adjunct, which manifests itself as the observable inertness of the exponent of X with respect to the processes affecting YP such as pitch accent and PWord-stress assignment which are dependent on the prosodic structure. In fact, the tendency to retain prosodic structure might be behind the observed tendency to preserve the phonological form. As observed in Michaels (To appear) and also in Dobler et al. (2009), (28) is "selective" in that with respect to some phonological processes a spellout domain is completely opaque (e.g. segment deletion), whereas with respect to others it is not (e.g. segment quality alternations). To account for this asymmetry, Michaels (To appear) suggests that what is really ruled out is the reduction of the number of timing slots or their re-linearization. Dobler et al. (2009) and Piggott & Travis (2012) entertain a similar idea that the said opaqueness consists in resisting *destructive* processes only.

The two-cyclic phasal spellout in the case of Norwegian and Swedish DP is schematized below, where the head realized as the suffixal determiner is X and the Number Phrase is YP from the definition in (32).

(34)



epenthesis

pitch accentuation
syllabification (syncope)
stress (vowel lengthening in Swedish)

6. Conclusions

Given the hypothesis that spellout preserves prosodic structure and the assumption that it is the complement of a phase-head that undergoes spellout first, PWord-adjunct status is predicted for the exponents of phase-heads. A number of recent works seems to favour yet a stronger version of the hypothesis about a correlation between PWord-adjunction and the phase-head position, namely, that clitics are always either a realization of a phase-head itself, or the result of a movement into a phase-head position. Progovac (1996) argued that second position particle clitics (markers of voice, mood, discourse connectives etc.) occupy C, and pronominal and auxiliary second position clitics adjoin to this position. Halpern (2001) suggested that verbal clitics of Romance type adjoin to some lower head (than C) and that, consequently, all the difference between types of clitics might be due to the head to which they adjoin. Finally, Roberts (2010) made the strongest claim that the only possible cliticization sites are

phase-heads. He dubs Romance-type pronominal clitics v-oriented and South Slavic-type – C-oriented, developing a long-standing generalization about two major types of clitics.

In addition to synchronic facts and theory-internal considerations, there is historical evidence suggesting phase-headedness to be the right notion to capture language change: Danish, which used to have double determination up until the 16th century (Petersen 1829) lost it some time after losing pitch accentuation (Fischer-Jørgensen 1989). A causation relation can elegantly be established between the two phenomena on the hypothesis that the loss of the status of a pitch accent clitic by the suffixal determiner was analyzed by language learners as evidence of the loss of the phase-head status by the lower D. This, in turn, triggered the collapse of the bi-phasal structure and a consequent loss of the double determination on the hypothesis that double determination, which instantiates a case of pronoun binding, is possible just in case the lower determiner is free within its phase.

The current analysis suggests that at least certain cases of clitic-hood can be seen as an epiphenomenon of the interaction of the general principles of cyclic spellout and a particular syntactic property (phase-headedness). I have analyzed suffixal determiners as PWord-adjunct type clitics in Selkirk's (1996) classification since they are inert for pitch accentuation, stress assignment and syncope, but active for the last cyclic process of epenthesis. I have proposed that PWord-adjunction is a product of the cyclic spellout, whereby spelled out material is assigned prosodic structure, Kratzer & Selkirk (2007), and the principle of prosodic persistence, which militates against changes in the prosodic structure of spelled out material. I invoked prosodic persistence since all the phonological phenomena in question (pitch accentuation, stress and vowel lengthening, syncope) crucially depend on the syllable and foot structure (Jensen 2008, Riad 1992, Morén 2007 a.o.). This work thus contributes to the investigation of mapping between syntax and prosodic structure.

References

Anderson, Stephen R. (2011). Clitics. van Oostendorp, Marc, Colin J. Ewen, Elizabeth V. Hume & Keren Rice (eds.), *Blackwell Companion to Phonology*, Blackwell, Oxford.

Anderssen, Merete (2005). The acquisition of compositional definiteness in Norwegian. Doctoral Dissertation, Universitetet i Tromsø.

Bader, Monika (2011). Constraining Operations: A Phase-based Account of Improper Movement and Anaphoric Binding. Doctoral dissertation, Universitetet i Tromsø.

Basbøll, Hans (2003). Prosody, productivity and word structure: the stød pattern of Modern Danish. *Nordic journal of linguistics* 26:01, 5–44.

Bermúdez-Otero, Ricardo & Ana R. Luís (2009). Cyclic domains and prosodic spans in the phonology of European Portuguese functional morphs. Handout for a talk given at the Old World Conference in Phonology 6.

Bouchard, David-Étienne (To appear). Spelling-out French clitics. *McGill Working Papers in Linguistics* 23.

Chomsky, Noam (2001). Derivation by phase. Kenstowicz, Michael (ed.), *Ken Hale: A Life in Language*, The MIT Press, 1–52.

Despić, Miloje (2011). Syntax in the Absence of Determiner Phrase. Doctoral Dissertation, University of Connecticut.

Dobler, Eva (To appear). Morpho-phonological Edge Phenomena. To appear in the proceedings of NELS 40.

Dobler, Eva, Heather Newell, Glyne Piggott, Tobin Skinner, Mina Sugimura & Lisa deMena Travis (2009). Narrow syntactic movement after spell-out. *Minimalist Approaches to Syntactic Locality*.

Eliasson, Stig (1972). Unstable vowels in Swedish: Syncope, epenthesis or both? Firchow, Evelyn, Kaaren Grimstad, Nils Hasselmo & Wayne O'Neil (eds.), *Studies for Einar Haugen*, Mouton, The Hague, 174–188.

Embick, David & Rolf Noyer (2001). Movement operations after syntax. *Linguistic Inquiry* 32, 555–595.

Fischer-Jørgensen, Eli (1989). Phonetic analysis of the stød in standard Danish. *Phonetica* 46:1-3, 1–59.

Gress-Wright, Jonathan (2008). A simpler view of Danish stød. *University of Pennsylvania Working Papers in Linguistics*, vol. 14 of *Proceedings of the 31th Annual Penn Linguistics Colloquium*.

Halmøy, Madeleine (2010). The Norwegian nominal system: a neo-saussurean perspective. Doctoral Dissertation, Universitetet i Tromsø.

Halpern, Aaron L. (2001). Clitics. Spencer, Andrew & Arnold M. Zwicky (eds.), *The handbook of Morphology*, Wiley-Blackwell.

Heim, Irene (2008). Definiteness and indefiniteness. Manuscript.

Jensen, John T. (2008). Stress and Accent in Swedish. *Nordic Journal of Linguistics* 3:01, 25–56.

Julien, Marit (2005). *Nominal Phrases from a Scandinavian Perspective*. John Benjamins, Amsterdam.

Kabak, B. & I. Vogel (2001). The phonological word and stress assignment in turkish. *Phonology* 315–360.

Katzir, Roni (2011). Morphosemantic mismatches, structural economy, and licensing. *Linguistic Inquiry* 42:1, 45–82.

Kester, Ellen-Petra (1993). The inflectional properties of Scandinavian adjectives. *Studia Linguistica* 47, 139–153.

Kratzer, Angelika & Elizabeth Selkirk (2007). Phase theory and prosodic spellout: The case of verbs. *Linguistic Review* 24:2/3, p. 93.

Kristoffersen, Gjert (2006). Markedness in Urban East Norwegian tonal accent. *Nordic Journal of Lingistics* 29:1, 95–135.

Kristoffersen, Gjert (2007). *The phonology of Norwegian*. Oxford University Press.

Lahiri, Aditi & Linda Wheeldon (2011). Phonological trochaic grouping in language planning and language change. Sónia Frota, Pilar Prieto, Gorka Elordieta (ed.), *Prosodic Categories: Production, Perception and Comprehension*, Springer, 17–38.

Lahiri, Aditi, Allison Wetterlin & Elisabet Jönsson-Steiner (2005a). Sounds definite-ly clitic: Evidence from Scandinavian tone. *Lingue e Linguaggio* 2, 243–262.

Lahiri, Aditi, Allison Wetterlin & Elizabet Jönsson-Steiner (2005b). Lexical specification of tone in North Germanic. *Nordic Journal of Linguistics* 28:01, 61–96.

Van der Leeuw, Frank (1997). Clitics: Prosodic Studies. Doctoral dissertations, Holland Institute of Generative Linguistics.

Leu, Thomas (2008). *The Internal Syntax of Determiners*. Ph.D. thesis, New York University.

Löfstedt, Ingvar (2009). Perceptually driven allomorphy: The Swedish non-neuter singular definite article. Schardi, Anisa, Martin Walkow & Muhammad Adurrahman (eds.), *Proceedings of the 38th annual meeting of the North East Linguistic Society*, Department of Linguistics, University of Ottawa, vol. 2, 87–99.

Lohrmann, Susanne (2008). On the structure of the Scandinavian DP. *Working Papers of the SFB 732 Incremental Specification in Context 01* 01, 83–102.

Michaels, Jennifer (To appear). To alternate or not to alternate: What is a boundary. To appear in the proceedings of NELS 40.

Morén, Bruce (2007). Central Swedish pitch accent: A retro approach. Paper presented at the 4th Old World Conference in Phonology, Rhodes.

Newell, Heather (2007). Aspects of the morphology and phonology of phases. Doctoral dissertation, McGill University.

Newell, Heather & Glyne Piggott (2006). Syllabification, stress and derivation by phase in Ojibwa. *McGill Working Papers in Linguistics* 20:1.

Petersen, Niels Matthias (1829). *Det Danske, Norske og Svenske Sprogs Historie under deres Udvikling af Stamsproget: Et af Samfundet til den Danske Literaturs Fremme Kronet Prisskrift*, vol. 1. Gyldendalske Boghandling, Kjøbenhavn.

Piggott, Glyne & Lisa Travis (2012). Wordhood and word internal domains: A project report. Handout for a talk given at the workshop Exploring the Interfaces (ETI) 1: word structure. McGill University. May 6–8.

Progovac, Ljiljana (1996). Clitics in serbian/croatian: Comp as the second position. Halpern, Aaron L. & Arnold M. Zwicky (eds.), *Approaching second: Second position clitics and related phenomena*, CLSI, 411–428.

Riad, Tomas (1992). Structures in Germanic prosody: A diachronic study with special reference to the Nordic languages. Doctoral dissertation, Stockholm University.

Riad, Tomas (2003). Bestämdhetssuffixens form och tvåstavigheten. *Grammatik i focus. Festskrift till Christer Platzack 18 november 2003*, Institutionen för nordiska språk, 145–152.

Roberts, Ian G. (2010). *Agreement and head movement: Clitics, incorporation, and defective goals*, vol. 59. The MIT Press.

Rooryck, Johan & Guido J. Vanden Wyngaerd (2011). *Dissolving Binding Theory*. Oxford University Press, USA.

Santelmann, Lynn (1993). The distribution of double determiners in Swedish: Den support in D^o. *Studia Linguistica* 47:2, 154–176.

Schwarz, Florian (2009). *Two Types of Definites in Natural Language*. Ph.D. thesis, University of Massachusetts Amherst.

Selkirk, Elizabeth (1996). The prosodic structure of function words. *Signal to syntax: bootstrapping from speech to grammar in early acquisition*, Lawrence Erlbaum Associates, Inc., Mahwah, NJ, 187–213.

Simonenko, Alexandra (To appear). When uniqueness is guaranteed: DEN-omission in Swedish. To appear in the proceedings of NELS 42.

Svenonius, Peter (2005). Two domains of causatives. Handout, University of Tromsø.

Taraldsen, Knut Tarald (1990). D-projections and N-projections in Norwegian. Mascaró, Joan & Marina Nespor (eds.), *Grammar in Progress: Generative Linguistics in the New World Essays for Henk van Riemsdijk*, Foris, Dordrecht, 419–431.

Vikner, Sten (1985). Parameters of binder and of binding category in Danish. *Working Papers in Scandinavian Syntax* 23, 1–61.

Proceedings of the 30th West Coast Conference on Formal Linguistics

edited by Nathan Arnett
and Ryan Bennett

Cascadilla Proceedings Project Somerville, MA 2012

ISBN 978-1-57473-454-6 library binding

Ordering information

Orders for the library binding edition are handled by Cascadilla Press.
To place an order, go to www.lingref.com or contact:

Cascadilla Press, P.O. Box 440355, Somerville, MA 02144, USA
phone: 1-617-776-2370, fax: 1-617-776-2271, sales@cascadilla.com

Web access and citation information

This entire proceedings can also be viewed on the web at www.lingref.com. Each paper has a unique document # which can be added to citations to facilitate access. The document # should not replace the full citation.

This paper can be cited as:

Simonenko, Alexandra. 2012. Clitic-hood as a Phonological Correlate of Phase-Head Status. In *Proceedings of the 30th West Coast Conference on Formal Linguistics*, ed. Nathan Arnett and Ryan Bennett, 313-323. Somerville, MA: Cascadilla Proceedings Project. www.lingref.com, document #2828.