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# Spellout and Double Determination in Mainland Scandinavian

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# Spellout and Double Determination in Mainland Scandinavian

## **Abstract**

This study considers a contrast in Mainland Scandinavian with respect to co-occurrence of a suffixal and a free-standing determiner ("double determination") in parallel to a series of contrasts in how the suffixal determiner is realized phonologically. On the basis of the phonological evidence I propose that in Norwegian and Swedish the suffixal determiner does not belong to the same phonological domain with the root with respect to several phonological processes, in contrast to Danish. Consequently, I argue that only in the former two languages the suffixal determiner should be considered a spellout trigger and thus a phase-head. Independently of this, I propose that in all Mainland Scandinavian the head hosting the suffixal determiner has a feature [Affix], proposed by Roberts (2005), that triggers a head-movement, whereas the head hosting the free-standing determiner does not have this feature. This state of affairs offers itself as an ideal testing ground for the hypothesis that there are general grammar constraints on the distribution of movement driving features, in particular of an EPP-like feature [Affix]. I propose that [Affix] specification should be consistent within a phase, which represents an amendment to the EPP downward inheritance generalization of Biberauer et al. (2008). The absence of "double determination" in Danish is then argued to follow from the non-phase head status of the head hosting the suffixal determiner in Danish, as this bleeds the environment for an [Affix] specification "switch".

# Spellout and Double Determination in Mainland Scandinavian

Alexandra Simonenko\*

## 1 Introduction

This paper relates a morphosyntactic phenomenon of “double determination” in Norwegian and Swedish and its absence from Danish to a series of independent phonological facts about determiners in these languages. I show that the cyclic-spellout hypothesis of Chomsky (2001) allows us to make use of phonological information to gain better understanding of morphosyntactic patterns. In particular, based on phonological phenomena, I propose that in Swedish and Norwegian suffixal determiners realize heads that trigger their complement’s spellout and therefore should be considered phase-heads, making for a double DP in these languages. In contrast, in Danish the phonology points to the non-phase head status of the determiner, which corresponds to the absence of “double determination” in this language.

Let us consider the main definiteness patterns in Mainland Scandinavian. Danish, Swedish and Norwegian share a suffixal definite determiner, as (1) shows<sup>1</sup>.

- (1) hund-en  
dog-EN  
“the dog” [Danish, Swedish, Norwegian]

However, the three languages also exhibit substantial differences in the structure of their definite expressions. The best known contrasting pattern is the so called “double determination”, which sets apart Swedish and Norwegian from Danish. In a nutshell, with modified nouns Norwegian and Swedish by default use a free-standing determiner together with the suffixal one, as (2) and (3) illustrate

- (2) Den gaml-a kvinna-n fortsatte sin resa <...>  
DEN old-W woman-EN continued her trip  
‘The old woman continued her trip <...>’ [Swedish<sup>2</sup>]
- (3) Den gaml-e kvinn-en fortsatte tur-en.  
DEN old-W continued trip-EN  
“The old woman continued her trip.” [Norwegian, Bokmål]

In contrast, in Danish the suffixal determiner in this case is dropped, and only the free-standing determiner appears, as (4) shows.

- (4) Den gaml-e kvinde fortsatte sin tur.  
DEN old-W woman continued her trip  
“The old woman continued her trip.” [Danish]

The paper is organized as follows. In Section 2 I present data concerning phonological properties of suffixal determiners in Mainland Scandinavian and point that the suffixal determiner seems to show less phonological coherence with the root in Swedish and Norwegian than in Danish I also propose to interpret this distinction in terms of whether or not a head hosting the definite morpheme is a phase-head. In Section 3 I argue that what underlies the “double determination” contrast corresponds to the contrast between bi- and mono phasal structures and offer an account of this correspondence based on an extension of the hypothesis of Biberauer et al. (2008) concerning the distribution of (head) movement-triggering features. Section 4 concludes the paper.

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<sup>1</sup>In Mainland Scandinavian determiners inflect for gender and number. I refer to the free-standing determiner as DEN and to the suffixal one as -EN disregarding their gender and number features. In definite expressions Scandinavian adjectives take on so called “weak” ending, which I gloss as -W.

## 2 Contrasting phonological phenomena and spellout domains

In this section I present data suggesting that suffixal determiners in Danish on the one hand and in Swedish and Norwegian on the other have different phonological properties. First, I present data suggesting that in Swedish and Norwegian the suffixal determiner, in contrast to the plural morpheme, does not belong to the same phonological domain with the root with respect to accentuation, root vowel lengthening, root vowel syncopation, as well as hiatus resolution. Second, I show that in Danish the suffixal determiner, similarly to the plural morpheme, triggers a root vowel lengthening and the increase in complexity of the coda of the final syllable of the root. Both these processes result in a phonological change in the root, *stød*. I will first discuss Norwegian and Swedish data and then present Danish phenomena.

### 2.1 Swedish and Norwegian: contrasting patterning of plural and definite suffix

#### 2.1.1 Invisibility for accentuation

This section discusses the evidence that the suffixal determiners in Swedish and Norwegian do not constitute one accentuation domain with the noun they attach to, unlike plural morphemes. Since Meyer (1937) it has been widely assumed that Swedish and Norwegian use contrastive accentuation, whereby two distinct pitch contours can distinguish otherwise phonologically identical forms. Realization of the contours is different in Norwegian and Swedish. It also varies from dialect to dialect in these languages so the contours are often dubbed Accent 1 (acute) and Accent 2 (grave) to avoid specifying a particular realization each time.<sup>3</sup> In Central Swedish the word *and* “duck” in (5) would be pronounced with one tonal peak and the word *andar* “ducks” in (6) with two peaks. In the notation of Riad (2000) this corresponds to *LH L]* and *H\*LHL]* contours respectively, where *H\** is a lexical tone, *LH* is a prominence tone and *L]* a boundary tone. In the discussion I use Swedish examples but the main points apply to Norwegian as well.

- (5) *and* /'án:d/ “duck” Accent 1  
 (6) *andar* /'àn:d-ar/ “ducks” Accent 2

A commonly made generalization is that in Swedish and Norwegian monosyllables have Accent 1, whereas bisyllables have Accent 2.<sup>4</sup> However, among bi-morphemic bisyllabic words there is a class of exceptions involving suffixal determiners. Namely, bisyllabic words consisting of a monosyllabic root and a suffixal determiner take Accent 1. In other words, the addition of a suffixal determiner does not change the accentual contour of the word. In (7) the bisyllabic form *anden* “the duck” has Accent 1.<sup>5</sup>

- (7) *anden* /'án:d-ən/ “the duck” Accent 1

Because of their “invisibility” for accentuation, suffixal determiners in Swedish and Norwegian have been called clitics by Lahiri et al. (2005), Kristoffersen (2006), among others. We can see from (6) and (7) that the suffixal determiner contrasts in this respect with the plural morpheme, which does influence the accent. I take this to indicate that the determiner lies outside of the accentuation domain of the noun, whereas the plural morpheme is inside of it.

<sup>3</sup>See, for instance, Riad (1996) for a picture of the Mainland Scandinavian accent typology.

<sup>4</sup>According to Eliasson (1972), in Swedish there are about 400 bisyllabic root morphemes ending in *-el*, *-er* and *-en* which exhibit Accent 1 instead of Accent 2. In a footnote to 2.1.2 I suggest that those should be treated as cases of epenthesis.

<sup>5</sup>Other morphemes that do not influence accentual pattern include an adjectival suffix *-isk* and the comparative ending *-re*, according to (Eliasson, 1972, 186).

### 2.1.2 Inability to trigger vowel syncope in roots

This sections shows that suffixal determiners do not cause vowel-zero alternations, unlike plural morphemes. In Swedish and Norwegian there is a large number of cases where vowels alternate with a zero variant. Alternations happen in both roots and affixes which have the right context. Eliasson (1972), who proposed to treat all alternations as cases of vowel syncope (as opposed to epenthesis), formulated the following rule to describe the process: an unstressed vowel becomes zero before a sonorant coronal consonant which is followed by an unstressed vowel.<sup>6</sup> An example of alternation is given in (8), where the plural morpheme *-ar* triggers the alternation in the root.<sup>7</sup>

- (8) *speglar* /spe:gel+ar/ → [spe:glar] “mirrors” [from (Eliasson, 1972, 174)]

Mainly the alternations involve the vowel /e/. However, in some cases other vowels, such as /a/, /o/, /u/ can also alternate with zero, as in (9) where the verb derived from the noun *pansar* (‘armor’, Swedish), loses the second /a/. In (10) the plural suffix causes the vowel /ɔ/ in the stem to disappear. I will refer to these cases as “unpredictable vowel” alternations.

- (9) *pansar* [ˈpan:sar] ‘armor’ → *pansra* [ˈpan:sra] ‘to armor’  
 (10) *aftnar* /af:tɔn+ar/ → [af:tɔnar] “evenings” [from (Eliasson, 1972, 178)]

Interestingly, suffixal determiners seem not to participate in “unpredictable vowel” alternations. In (11) the suffixal determiner *-et* does not trigger the disappearance of the root vowel, unlike the plural morpheme in (10).

- (11) *pansaret* /ˈpan:sar+ət/ → [ˈpan:saret] “the armor”

We see that the determiner contrasts with the plural morpheme in not being able to trigger “unpredictable vowel” alternations.<sup>8</sup>

### 2.1.3 Inability to trigger root vowel lengthening

I turn now to the root vowel lengthening, another process with respect to which suffixal determiners behave differently from plural morphemes and many other derivational suffixes. Swedish and Norwegian share the so called complementary length principle whereby either the vowel or a consonant in the syllable with primary or secondary stress should be long. The vowel is long when in an open syllable or when followed by a single consonant within a morpheme. Changes in the syllable structure or in stress placement, as well as many cases of inflectional and derivational affixation, induce length alternations, as amply demonstrated by Eliasson (1985). In (12) the addition of an adjectival suffix *-at-* causes the stress shift, which leads to the shortening of the second root vowel. Again, the phenomenon is illustrated on the Swedish data, but, according to Eliasson (1985) this extends to Norwegian as well.

- (12) *systematisk* /sys'te:m+a:t+isk/ → [syste'ma:tisk] “systematic” [from Eliasson (1985)]

<sup>6</sup>I have rendered into words the formal notation of Eliasson (1972).

<sup>7</sup>Vowel alternations of this sort are usually assumed to be triggered by the syllabification requirement prohibiting sequences consisting of a stressed syllable followed by two unstressed syllable, Riad (1992), Morén (2007).

<sup>8</sup>When it comes to /e/-alternations, the contrast might seem to disappear. Consider the following where it looks like the disappearance of the root vowel /e/ is triggered by the determiner *-et*: *fönster* ‘window’ (uninflected) vs. *fönstr-et* “the window”. However, unaffixed *fönster* surfaces with Accent 1. There is a tradition, as in Öhman 1966 among others, of analysing bisyllables with Accent 1 as underlying monosyllables surfacing with epenthetic /e/. I adhere to this analysis.

In (13) the plural morpheme triggers vowel lengthening in the second syllable.

- (13) *vardagar* /'va:ɖag+ar/ → ['va:ɖa:gar] “week days”

Unlike the plural morpheme, the determiner does not trigger root’s vowel lengthening. In (14) the second /a/ of the root stays short.

- (14) *vardagen* /'va:ɖag+ən/ → ['va:ɖagən] “the weekday”

We have thus seen that the determiners are outside of the domain where vowel lengthening applies to the root. In contrast, the plural morpheme is inside of that domain.

#### 2.1.4 Hiatus resolution contrast

The last phonological process to be considered is hiatus resolution in Swedish. When added to the root ending in vowel, the plural morpheme triggers a change in the root vowel quality, as in (15). In contrast, the determiner in such a context loses its own vowel without affecting the vowel in the root, as in (16).

- (15) *resor* /'re:sa+ar/ → ['re:sor] “trips”  
 (16) *hjärtat* /'jet:a+ət/ → ['jet:at] “the heart”

To sum up, we have seen evidence that suffixal determiners are outside of the accentuation domain of the root, outside of the domain where process triggering root vowel lengthening applies, as well as outside of the domain where root vowel syncope operates. In addition, they are also outside of the domain where the hiatus can be resolved by merging suffixal vowel with the root vowel. In contrast, the plural morpheme seems to be inside of all those phonological domains. The following section is concerned with Danish phenomenon of “stød” which can be triggered both by the plural morpheme and by the suffixal determiner.

## 2.2 Danish: similar patterning of plural and definite suffix

### 2.2.1 Inducing stød on the root

In Danish the suffixal determiner patterns with the productive plural morpheme *-(e)r* in triggering a phonological change, the phonation type called “stød”, in those roots that have the right phonological environment traditionally called “stød basis”. The latter involves a stressed syllable which should consist either of a long vowel only or of a short vowel immediately followed by a sonorant consonant followed by another consonant, as in (17) and (18) respectively.<sup>9</sup>

- (17) *hus* /hu:ʔs/ “house”  
 (18) *alt* /alʔt/ “everything”

Phonetically stød involves a constriction of the glottis that accompanies articulation of voiced consonants and vowels and is often transcribed with a superscript glottal stop.

There are many cases of stød-alternations, with some morphemes inducing stød in the roots and some causing it to disappear, depending on the phonological makeup of the root and the morpheme. According to Basbøll (1986), stød is lost in monosyllabic roots before morphemes consisting of a schwa, which include an unproductive plural morpheme, compound interfix and a weak adjectival ending. In some cases a productive plural morpheme *-er* also removes stød, as in (19)

<sup>9</sup>Stød sometimes appears in monosyllabic roots that involve a short vowel followed by a single sonorant consonant, in which cases it is usually said to be lexically specified. Historically words of this type had geminate sonorants, as pointed out, for instance, by Gress-Wright (2008).

(19) *summer* (from *sum*) /sɔm<sup>?</sup>+ɔr/ → [sɔmø] “sums”

In other cases the productive plural morpheme induces stød, as in (20). In general, suffixes consisting of a schwa followed by a sonorant induce stød, as it is the case for the present tense morpheme as well as for the suffixal determiner, as in (21) (Examples adapted from Basbøll (2003, 7)).

(20) Productive plural morpheme: *balkoner* /bəl<sup>h</sup>k<sup>h</sup>Λŋ+ɔr/ → [bəl<sup>h</sup>k<sup>h</sup>Λŋ<sup>?</sup>ɐ] “balconies”

(21) Suffixal determiner *-en*: *balkonen* /bəl<sup>h</sup>k<sup>h</sup>Λŋ+ɔn/ → [bəl<sup>h</sup>k<sup>h</sup>Λŋ<sup>?</sup>ŋ] “the balcony”

Finally, Basbøll (1986) argues that stød alternations, or stød-sandhi, are word internal phenomena in that they “do not extend across boundaries between words (including clitics)”. Consider, for instance, the pair in (22), where the mono-morphemic word *hals* (“neck”) has stød basis and consequently stød, whereas the word *tals* (“of number”) consisting of a root without stød basis plus a genitive clitic does not have stød. It has been independently argued by Herslund (2001) that Danish genitival morpheme *-s* is syntactically a clitic.

(22) *hals* /hal<sup>?</sup>s/ ‘neck’ vs. *tal-s* /tal+s/ → [tals] “of number”

Since we are focusing on suffixal determiners, let us ask the question of what exactly the suffixal determiner does to the root to induce stød. In the case of stems ending in a consonant the suffixal determiner, after its schwa had been syncopated, makes root’s coda complex. The latter creates a stød basis in the root. In the case of roots ending in a vowel, the suffixal determiner triggers lengthening of the preceding root vowel, as in (23). According to (Basbøll, 2003, 22), “[b]efore *en* ending beginning with phonological schwa, the (lexically short) stem vowel alternates with a long vowel and is thus eligible for stød”.

(23) *soffa-en* /s’o:fa+ɔn/ → [s’o: fæ:ʔŋ] “the sofa”

Stød alternations show us that the suffixal determiner belongs to the phonological domain where stød can be induced on the root, the same way other morphemes with the right phonological makeup do including the productive plural morpheme. Depending on the root, this involves either causing root’s vowel lengthening or creating a complex coda in the root, in which cases the root becomes eligible for stød.

### 2.3 Unifying syntax and phonology: DP spellout

Above I discussed several phonological processes in Norwegian and Swedish operating on the nominal root and potentially some adjacent morphemes. We saw that the domains of these processes seemed to coincide: they all included the root and the plural morpheme and excluded the suffixal determiner. In contrast, in Danish the domains of the phonological processes leading to the appearance of stød on the root include both the plural morpheme and the suffixal determiner. I propose that these observations can receive a unified account on the theory of phases and cyclic spellout, Chomsky 2001, which will then help us elucidate the morphosyntactic pattern.

Concretely, a natural way to reflect these phonological facts onto morphosyntactic structure is to say that all phonological processes with coinciding domains apply within the same spellout domain. Consequently, a morpheme which is not affected by those processes is analyzed as not belonging to the spellout domain in question. I propose that this is the case of the suffixal determiner in Swedish and Norwegian. On the same hypothesis in Danish it is analyzed as being spelled out in the cycle where the stød inducing processes apply to the root, which must be same cycle where the stød inducing plural morpheme gets spelled out, as the two morphemes pattern the same with respect to stød.

On the assumption that the spellout of a phase is triggered by the merger of the head of the phase, I conclude that in Swedish and Norwegian the head hosting the suffixal determiner, which lies right outside of the spellout domain involving the root and the number morpheme, triggers the

spellout of the root plus the plural morpheme and as such should be considered a phase-head. In Danish the head hosting the suffixal determiner does not have such a property.

In what follows I present the consequences of this hypothesis for the “double determination” contrast.

### 3 Mono vs. bi-phasal structures and single vs. double DP

The cornerstone of the analysis of “double determination” contrast will be the hypothesis that the determiner head realized by the suffixal determiner -EN triggers the spellout of its complement in Norwegian and Swedish but not in Danish. Since the property of triggering spellout is usually associated with phasal heads, I will be referring to  $D^o$  as either phasal or non-phasal head depending on the language.

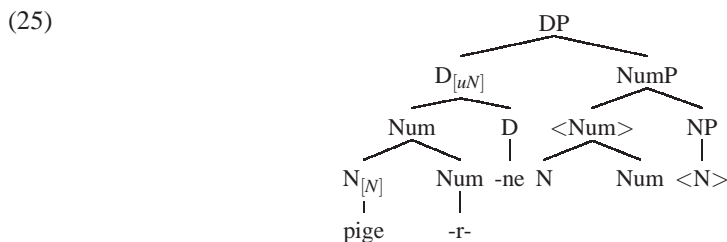
I will derive the “double determination” pattern from the hypothesis that -EN and DEN instantiate two different  $D^o$  heads,  $D^o_{low}$  and  $D^o_{high}$  respectively. In Swedish and Norwegian  $D^o_{low}$  and  $D^o_{high}$ , I argue, can co-occur creating a double DP configuration. This configuration is absent from Danish I will argue that the Danish ban on the co-occurrence of the non-phasal  $D^o_{low}$  endowed with an EPP-like [Affix] feature with [Affix]-free  $D^o_{high}$  follows from the extension of the “EPP downward inheritance” constraint of Biberauer et al. (2008) that I propose. The constraint requires that [Affix] specification not change within one phase, essentially ruling out the disharmonic morpheme order within a phase. First I present the analysis of unmodified nouns and then of modified ones.

#### 3.1 Unmodified definite expressions: parallel structures – different derivations

In this section I argue that the unmodified DP has the same architecture in all Mainland Scandinavian languages, which is reflected in completely parallel default surface patterns. However, Danish differs from Norwegian and Swedish in what kind of movement – raising or lowering – derives the final configuration. Whether it is raising or lowering will be argued to depend on whether the head hosting -EN is a spellout trigger. The latter property also ultimately determines whether another determiner head can be added to the structure.

I propose that by default a DP without modifiers has only one position suitable for a determiner morpheme in Mainland Scandinavian. I will dub this position  $D^o_{low}$  to distinguish it from  $D^o_{high}$  which will appear in the discussion of modified nouns. Among other features, this head is specified with an uninterpretable nominal feature [uN] which needs to be checked in a particular configuration (to be made specific shortly) by an element with an interpretable [N] feature. I assume that the noun bears such a feature. Crucially, I propose that Danish differs from Swedish and Norwegian in how a feature checking configuration obtains. Namely, for Danish I follow the traditional N-to-D analysis, argued for by Delsing (1988) among others. I assume that after this movement the whole DP is sent to spellout. This is illustrated in (25) for the expression in (24).

- (24) pige-r-ne  
girl-PL-EN  
‘the girls’ [Danish]



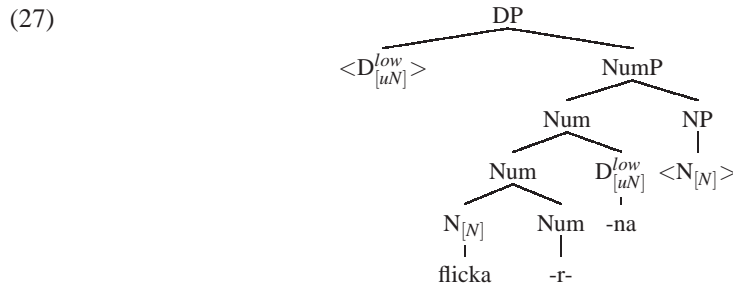
I propose that the uninterpretable [uN] feature which drives the head movement is an instantiation of the [Affix] feature of Roberts (2005). As originally defined, [Affix] is different from EPP only “in terms of what is required to be spelt out on H (the head in question – A.S.): EPP requires



that this be an XP and [Affix] that it be a Stem.”<sup>10</sup>

In contrast to Danish, in Norwegian and Swedish, I argue, there is no N-to-D. On the hypothesis that in Norwegian and Swedish  $D_{low}^o$  triggers the spellout of its complement, I propose that after the noun and  $\text{Num}^o$  have been spelled out, the determiner head *lowers* onto the head of its complement, which happens to be  $\text{Num}^o$  with incorporated  $N^o$  via the lowering mechanism proposed in Embick and Noyer 2001. The derivation for (26) is showed in (27).

- (26) flicko-r-na  
 girl-PL-EN  
 “the girls” [Swedish]



Importantly, I argue that in Mainland Scandinavian [uN] triggers head movement because this feature can be checked only in particular configuration: either in a head-adjunction configuration of the sort we have just seen, or in a configuration of c-command, which will be discussed in the next subsection. This stems from an anaphor-like nature of [uN] feature, as I hypothesize that uninterpretable nominal features syntactically behave similarly to how anaphoric expressions behave in the domain of semantics.

To sum up, I have argue that the timing of spellout with respect to the checking relation between [uN] and [N] determines whether the Probe lowers to the Goal or whether the Goal raises to the Probe. In Swedish and Norwegian, where the Goal is spelled out before checking takes place, the Probe lowers to the Goal. In Danish, where checking precedes spellout, the Goal raises to the Probe. In the next subsection I will present the proposal for modified nouns, which, of course, bears on the “double determination” pattern.

### 3.2 Modified definite expressions: Bi-phasal vs. mono-phasal DP

Let us now consider what happens when a definite noun gets a modifier. First I will present the structure of a modified definite in Swedish and Norwegian in which the two determiners co-occur, and then an account of why it cannot be the same in Danish based on the hypothesis that  $D_{low}^o$  is not a phase-head in this language coupled with certain constraints on the distribution of movement-triggering features.

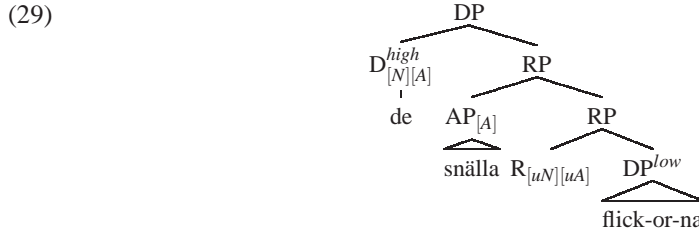
I propose that adjectives in Mainland Scandinavian are merged in the Specifier of a R(elator)<sup>o</sup> head which takes the low DP as its complement.  $R^o$  is specified with uninterpretable [uA(adjective)] and [uN] features. Adjectives that are merged in the Spec of  $R^o$  have an interpretable [A] feature which checks [uA] on  $R^o$  in a local Spec-Head configuration. Finally, I argue that RP is taken as a complement by  $D_{high}^o$  which is specified with an interpretable [N] feature. When  $D_{high}^o$  is merged, it values [uN] on  $R^o$ . I argue that no movement here is necessary because the Goal c-commands the Probe, which is a possible configuration for checking [uN], as mentioned in the previous section.<sup>11</sup>

<sup>10</sup>Unlike Roberts (2005) who proposes that [Affix] makes a head move to the Specifier position which is followed by incorporation at spellout, I assume that it triggers a classic head-to-head movement. In the case at hand [uN] triggers N-to-D movement. This movement proceeds through an intermediate head  $\text{Num}^o$  which is then carried along to  $D_{low}^o$ .

<sup>11</sup>Note that the configuration under which [uN] can be checked on this account is the opposite of what is required for the Agree relation, where Probe would c-command the Goal. I propose that [N] must c-command [uN] because of the anaphor-like nature of the latter.

The structure of a Swedish definite expression with a modifier in (28) is given in (29).

- (28) de snäll-a flicko-r-na  
 DEN kind-W girl-PL-EN  
 ‘the kind girls’ [Swedish]

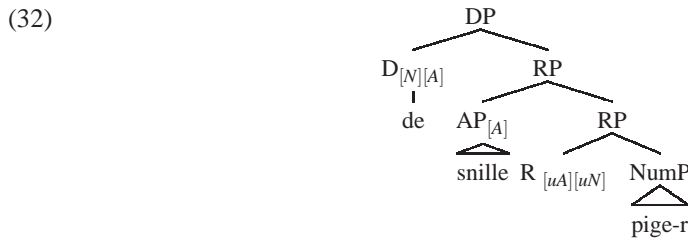


The evidence suggesting that  $D_{high}^o$  has some sort of nominal feature comes from the pattern in (30). This behaviour is similar to that of the English pronoun *one*, as observed by (Julien, 2005, 29).

- (30) Det var två penna-r på bord-et. Jag tog den blå-a.  
 it was two pen-PL on table-EN I took DEN blue-W.  
 ‘There were two pens on the table. I took the blue one.’ [Swedish]

The structure in (29) is valid for Swedish and Norwegian, but, crucially, not for Danish I argue that in Danish  $R^o$  is merged with NumP, which is illustrated in (32) for the expression in (31).

- (31) de snill-e pige-r-(\*ne)  
 DEN kind-W girl-PL-(\*EN)  
 ‘the kind girls’ [Danish]



In this structure RP, as before, is taken to be the complement of  $D_{high}^o$ , which checks  $[uN]$  on  $R^o$ . However, the lower  $D_{low}^o$  position is absent.

In the next subsection I will argue that the ban on determiner co-occurrence in Danish follows from the non-phase head status of  $D_{low}^o$  and a general grammar constraint on the disharmonic morpheme order. The main argument is that if  $D_{low}^o$  does not trigger the spellout of its complement and is thus not a phase-head, it cannot co-occur within the same structure with another determiner head that does not have  $[uN]$  feature, namely  $D_{high}^o$ , because of the principle I defend here that  $[Affix]$  specification should be consistent within one phase.

### 3.3 “Double determination” and disharmonic morpheme order constraint

As argued above,  $D_{low}^o$  is endowed with a head-movement triggering  $[uN]$  which instantiates Roberts’ (2005)  $[Affix]$  feature.  $D_{high}^o$ , on the other hand, has an interpretable  $[N]$  which does not qualify as  $[Affix]$  feature, just like any other interpretable categorial feature. This way the co-occurrence of the two determiners creates a structure where a head with  $[Affix]$  feature co-exists with a head without such feature. I propose that this can be possible only if the determiner heads are in separate phases.

This proposal develops and extends onto the feature  $[Affix]$  the hypothesis of Biberauer et al. (2008) for the EPP feature. The hypothesis states that phasal heads, if specified with EPP, make heads in their complement be specified with EPP as well. This hypothesis was formulated by Biberauer et al. (2008) in the form of the following generalization to account for the gaps in observed disharmonic word orders such as V-O-Aux, V-O-Comp and N-O-P:

- (33) If a phase-head PH has an EPP feature, then all the heads in its complement domain from which it is non-distinct in categorial features must have an EPP feature.

Biberauer et al. (2008) argued that we do not see final-over-initial words orders such as V-O-Aux because EPP gets “inherited” down the structure. In this paper I propose, first, that this principle also holds about the feature [Affix] which drives the head movement, and, second, that it should be amended, namely that *the absence of* EPP or of [Affix] also “inherits” down the structure. However, this holds only within the same phase. The amended constraint in (34) covers both EPP and [Affix], although it is only the latter that I deal with in the present analysis.

- (34) If a phase-head PH doesn't have an EPP or [Affix] feature, then all the heads in its complement domain from which it is non-distinct in categorial features and down to the next phase must not have an EPP or [Affix] feature.

(33) states that EPP can only appear but not disappear going from higher to lower heads of the same category, whereas (34) demands that EPP and [Affix] “switches” occur only between phases.

We can now address the “double determination” contrast in Mainland Scandinavian. Given (34) and the assumption that  $D_{high}^o$  does not have [Affix] whereas  $D_{low}^o$  does, we expect their co-occurrence, and thus the “double determination” pattern, to be possible only if there is a phasal boundary between the two determiners<sup>12</sup> I have argued above, based on the analysis of independent phonological evidence, that this boundary is present in Swedish and Norwegian and is absent from Danish. This granted, (34) rules out “double determination” in Danish.

#### 4 Conclusions

In this paper I appealed to phonological data to elucidate a morphosyntactic contrast in Mainland Scandinavian definiteness marking. I presented a series of phonological phenomena that allow us to hypothesize that in Danish  $D_{low}^o$  hosting -EN is not a spellout trigger and, as such, not a phase-head, whereas in Norwegian and Swedish it is. Syntactically, I argued that  $D_{low}^o$  triggers a head movement in all three languages, whereas  $D_{high}^o$  hosting DEN does not. In view of this, I proposed that the combination of -EN and DEN makes for a disharmonic word order and is subject to an extension of Biberauer et al.'s (2008) constraint to the distribution of a head-movement triggering [Affix], namely that the heads of the same category within the same phase should either all be specified with [Affix] or none of them should. I have then argued that, not being a phase-head, Danish  $D_{low}^o$  cannot be a point where [Affix] specification “switches”, which makes its co-occurrence with  $D_{high}^o$  impossible. The proposal thus offered a unified analysis of diverging syntactic patterns and phonological contrasts between the DP in Danish and in the two other languages. Instead of treating [Affix] as a diacritic on some other feature, I proposed that this is really an uninterpretable nominal features that is disguised as [Affix]. I have suggested that the movement triggering property of an uninterpretable nominal feature follows from its anaphor-like character due to which it needs to be either c-commanded by or head-adjoined to the element with a corresponding interpretable feature. This paper thus can be seen as contributing to the research of the principles of head feature specification.

The present account fits with the historical data which suggest that in Danish “double determination”, once present and attested as late as in the 16th century according to (Petersen, 1829, 252), disappeared some time after Danish lost its contrastive accentuation system and thus lost accentual clitics.<sup>13</sup> The change in the phonological status of the suffixal determiner could have been what made  $D_{low}^o$  in Danish lose its phase-head status. Further research is required to confirm this.

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<sup>12</sup>The phasal boundary is assumed to lie immediately above the maximal projection of the phase-head whereas the spellout boundary is taken to be between the phase-head and its complement.

<sup>13</sup>See Fischer-Jørgensen (1989) for a nuanced overview of the literature on the accent loss.

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