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The Undetermined Mechanism:
Definiteness Marking on Modified Nouns in Danish
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Abstract

Scandinavian languages differ in their determiner use on modified nouns. Particularly Danish seems unique in its apparent blocking effect of adjectives: the presence of a prenominal adjectival modifier seems to prevent definiteness suffixation on the noun, which is instead made definite by an independent preadjectival article. Different proposals have been put forward in an attempt to account for this phenomenon, as well as definiteness marking on modified nouns in Scandinavian in general. Ranging from syntactic accounts with either one or two DP-layers to post-syntactic accounts proposing definiteness marking through a morphological process, the topic of definiteness marking in Scandinavian is still actively debated in the field. With a specific focus on Danish, this thesis will compare the advantages and disadvantages of these proposals by studying their analysis of definiteness marking on nouns modified by a prenominal adjective, by relative clauses, and by postnominal PPs, as well as their inclusion of the different semantic features that the prenominal and postnominal article contribute. It will turn out that none of the considered analyses have been completely successful in accounting for the surface distribution nor for the semantic features realized by the two articles, which leaves the field open for exploring another possible domain of definiteness marking: prosodic phrases.

Keywords: noun movement, split DP hypothesis, distributed morphology, definiteness marking, modified nouns, relative clauses, postnominal PPs, Scandinavian DPs

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List of Abbreviations

3P	Third Person	MASC	Masculine Gender
[def]	Definiteness	NEU	Neuter Gender
[disc]	Discourse Reference	NP	Noun Phrase
[sref]	Specific Reference	PF	Phonological Form
DEF	Definite Article	PP	Prepositional Phrase
DP	Determiner Phrase	PRES	Present Tense
IDF	Indefinite Article	SELF	Reflexive
LF	Logical Form	SG	Singular

Chapter 1: Introduction

Like all Scandinavian languages, Danish diverges from other Germanic languages in its determiner behaviour.¹ Though an indefinite noun has an independent article located towards its left as is conventional (1a),² the article is suffixed on the noun when it is definite (1b).

(1) *DANISH*

a. *en hest*
IDF horse
'a horse'

b. *hest-en*
horse-DEF
'the horse'

(Hankamer & Mikkelsen, 2002, p. 1)

More remarkably, definiteness is realized differently when the nominal phrase is modified by a prenominal adjective, in which case Danish uses an independent preadjectival article rather than a suffixed article (2).

(2) *DANISH*

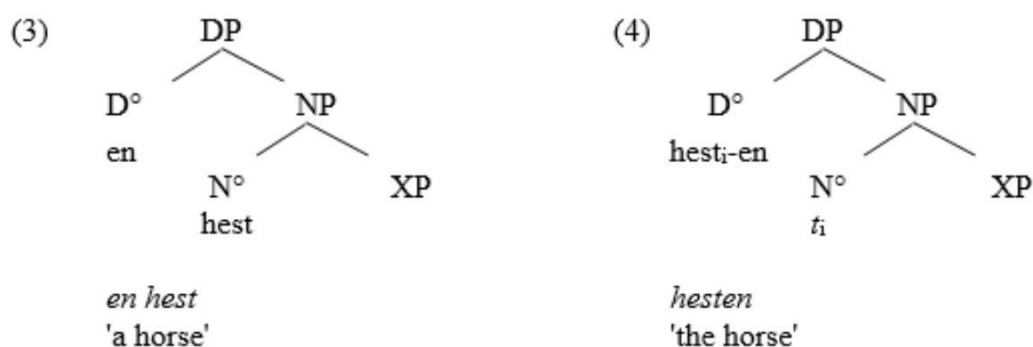
denrødehest
DEF red 'the horse
red horse'

(Hankamer & Mikkelsen, 2002, p. 1)

This difference in article use has received much attention in the field, and has been proposed to be a consequence of a blocking of N-to-D movement in one of the more prominent approaches (Delsing, 1993; Embick & Noyer, 2001). When the nominal phrase is definite, the noun is proposed to move upwards to D, because of reasons ranging from the enclitic nature of the article to the need for the noun to be marked by definiteness. As the article is generated in D, this yield the suffixation of the article on the noun, as illustrated in (4), which contrasts with indefinite nominal phrases, where the noun remains in its base-generated position (3).

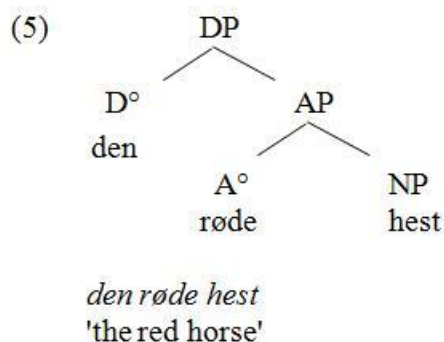
¹ The scope of this thesis only allowed for a focus on determiner phrases with definite articles; an in-depth analysis and discussion of demonstratives, possessives, etc. may be found through the reference list.

² In some cases, glosses and translations were not provided in the source material and have been added for clarity. All mistakes are my own.



(Adapted from Delsing, 1993, p. 74)³

Such is the normal behaviour of Danish nouns in definite determiner phrases, but this movement is supposedly blocked when the noun is modified by a prenominal adjective. Combining the Head Movement Constraint (Travis, 1984, p. 129), which forbids head-movement operations to skip an intermediary head, with the assumption that adjectives are heads, adjectives would block head-to-head movement because they intervene between N and D, as can be seen in (5). As definiteness still needs to be expressed on the DP in some way, D is filled by an expletive article ('den', in this case).



(Adapted from Delsing, 1993, p. 81)

In contrast, this supposed blocking effect is not found in other Scandinavian languages. They are often divided into single and double definiteness languages, with Danish and Icelandic occupying the former, and Swedish, Norwegian, and Faroese grouped into the latter. Let us look at these languages in turn.

³ Trees have been adapted and simplified – notions not directly relevant to the subject matter, such as the VP Internal Subject Hypothesis (Koopman & Sportiche, 1991), have not been incorporated.

Icelandic is the only Scandinavian language without an indefinite determiner (6a), but it adds a suffixed determiner when the DP is definite, like all other Scandinavian languages (6b). It only uses a preadjectival determiner in formal literary contexts (6c); in all other cases, Icelandic uses a suffixed determiner to express definiteness (6d). As such, it is similar to Danish in that it only uses a single determiner in modified nominal phrases, but it differs in the kind of determiner: Danish introduces a preadjectival determiner, while Icelandic maintains its use of the suffixed determiner.

(6) *ICELANDIC*

a. *hús*

house

‘(a) house’

(Delsing, 1993, p. 28)

b. *hús-ið*

house-DEF

‘the house’

(Vangsnes, 1999, p. 145, quoted in Julien, 2005, p. 54)

c. *Hið langa kvæði var frekar leiðinlegt*

DEF long poem was rather boring

‘The long poem was rather boring’

(Thráinsson, 2005, p. 97, quoted in Perridon & Sleeman, 2011, p. 9)

d. *gamla hús-ið*

old house-DEF

‘the old house’

(Julien, 2005, p. 54)

Though double definiteness languages behave similarly to single definiteness languages with regards to unmodified indefinite (7a) and definite (7b) DPs, they owe their name to their determiner use when the nominal phrase is modified by a prenominal adjective. The Swedish example in (7c) illustrates the simultaneous occurrence of both the preadjectival determiner *det* and the postnominal determiner *-et*. As they largely pattern alike, Swedish, Norwegian, and Faroese are commonly treated as one homogenous group.

(7) *SWEDISH*

- a. *ett* *hus*
 IDF house
 'a house'

(Delsing, 1993, p. 74)

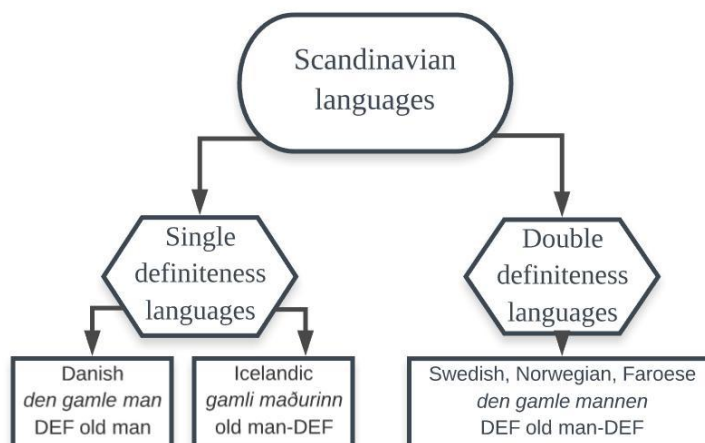
- b. *hus-et*
 house-DEF
 'the house'

(Delsing, 1993, p. 74)

- c. *det* *gula* *hus-et*
 DEF yellow house-DEF
 'the yellow house'

(Julien, 2005, p. 27)

These intra-Scandinavian differences are summarized in (8). It appears that the adjective only functions as a 'blocker' in Danish, while the other languages retain their use of the suffixed determiner. This raises the question whether N-to-D movement analyses hold for double definiteness languages, as the occurrence of two determiners suggests that the adjective does not block noun movement. Additionally, other theories might better be able to account for definiteness marking in Scandinavian. The advantages and disadvantages of different theories trying to account for determiner behaviour of Scandinavian DPs, with particular attention to the blocking effect of adjectives in Danish, will be the very matter addressed in this thesis.

(8) *Division between single and double definiteness languages*

In the subsequent chapters, the validity of different accounts of Scandinavian DPs will be examined, with particular attention to Danish. The next chapter will focus on N-to-D movement analyses, and will address the (im)probability of the syntactic assumptions that they are based on. Other syntactic accounts proposing a more complex DP structure will be discussed in Chapter 3, specifically studying the semantic features that are thought to underlie the preadjectival and postnominal determiner. Chapter 4 will take a different perspective by considering if definiteness marking can be a process which takes place post-syntactically, where two proposals focusing on Danish DPs under the framework of Distributed Morphology will be examined. Additionally, different types of modification of the nominal phrase will be included in this chapter, and be taken up again in Chapter 5, which will contrast and compare how well the different approaches account for definiteness marking in modified nominal phrases in Scandinavian. It will appear that none of the considered analyses have been able to entirely capture the behaviour of particularly Danish determiners. After considering post-syntactic and morphological accounts, the final chapter will briefly point to an unexplored domain in accounting for definiteness marking in Danish: prosodic phrases.

Chapter 2: N-to-D Movement Analyses

2.1 Basics of N-to-D movement

Definite nouns in Scandinavian are remarkable because of their morphological make-up: rather than having an independent prenominal article, the article is suffixed on the noun (9).

(9) *DANISH*

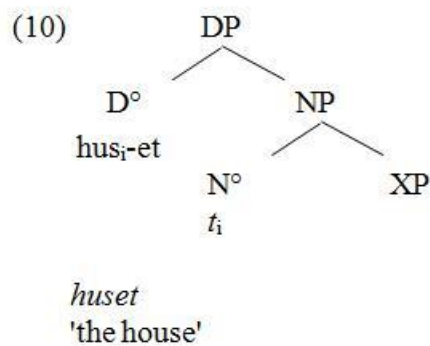
hus-et

house-DEF

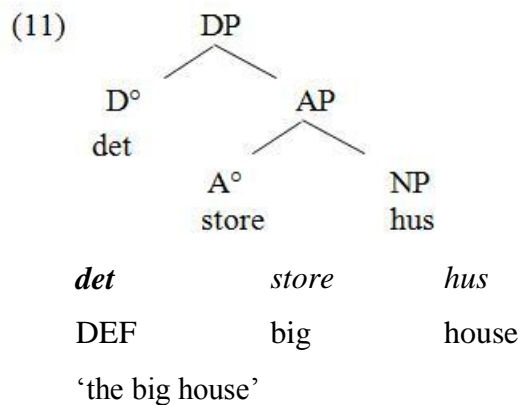
'the house'

(Lohrmann, 2011, p. 113)

It is commonly assumed that the determiner precedes the noun in syntax. In N-to-D movement analyses (Delsing, 1993; Embick & Noyer, 2001), the suffixed determiner is thought to be the result of head movement of the noun to D (10).

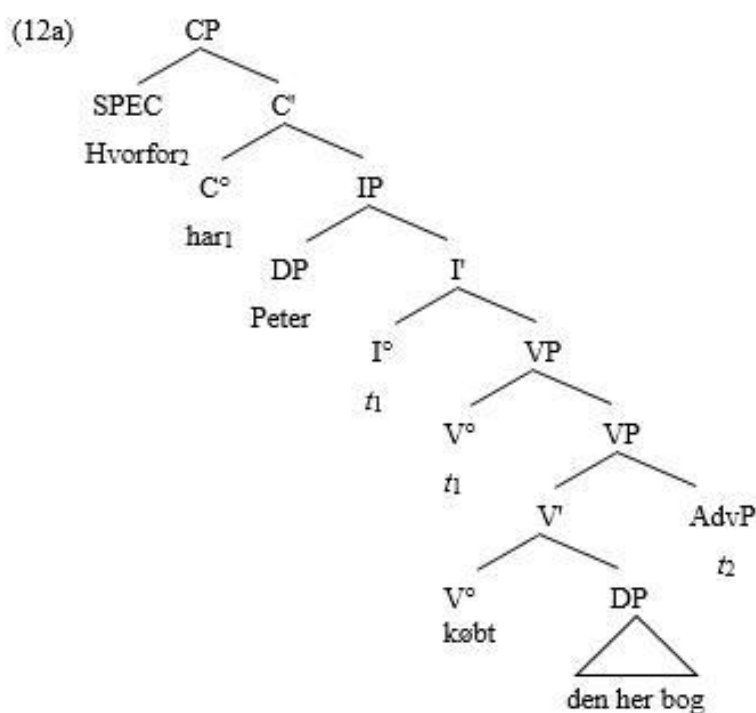


However, this affixation of definiteness is not observed in the presence of prenominal adjectival modifiers: in this context, the article is realized preadjectivally (11).



(Lohrmann, 2011, p. 119)

N-to-D movement analyses propose that this arises as a consequence of blocking: the adjective is thought to prevent the noun from moving to the D-position. This is based on the assumption that adjectives are heads, which, following the Head Movement Constraint (Travis, 1984), forbid head-movement operations from skipping an intervening head position. The HMC is in accordance with the relativized minimality analysis (Rizzi, 1990), and as such is simply an expression of general locality conditions on movement. The HMC functions to limit movement of, for example, compound tense verbs in Danish. As can be seen in (12a, b), while *har* 'has' is allowed to move from its base-generated position to C° , *købt* 'bought' is not (12c). If *købt* moves upwards from its base-generated position to C° , it would cross a head position (V°) where it cannot intermittently land, because it is occupied by *har*. It would violate the HMC and is thus ungrammatical.



Hvorfor har Peter købt den her bog?
 'Why has Peter bought this book?'

(12b) Hvorfor₂ har₁ Peter ____₁ købt den her bog ____₂ ?

*(12c) Hvorfor₂ købt₁ Peter har ____₁ den her bog ____₂ ?

N-to-D movement analyses propose that the HMC is exactly what causes preadjectival determiners: the adjective, as a head, would block head movement of the noun. As a result, [def] is realized in an independent article. However, it is highly improbable that adjectives,

instead of nouns, head the complement of D, as will be argued for below. As a representative of N-to-D movement analyses, Delsing's (1993) SpecA analysis will be discussed subsequently, with a particular focus on the internal consistency of his analysis for Danish and Icelandic.

2.2 The Improbability of Adjectives Heading the Nominal Phrase Adjectives are both unlikely to classify as heads as well as unlikely to head a modified nominal phrase: they do not possess the properties typically associated with heads and they do not behave like heads with respect to subcategorization and scope. Additionally, the notion that adjectives would block head movement does not explain why other head movement operations do or do not occur, both in the nominal and in the verbal domain. Let us go over the arguments in some detail.

Following the criteria for classifying as a head as outlined by Zwicky (1985), Svenonius (1994) points out that adjectives do not qualify as heads: they are recursive and not obligatory. Adjectives can be stacked on top of each other (13a), indicating that they are not unique within the phrase. Furthermore, they can also be omitted altogether (13b), suggesting that they do not head the nominal phrase.

(13) *SWEDISH*

a. *en lång mörk stilig främling*

IDF tall dark handsome stranger

'a tall dark handsome stranger'

(Delsing, 1993, p. 88)

b. *en främling*

IDF stranger

'a stranger'

(Delsing, 1993, p. 88)

Additionally, the adjective "does not control features on the NP it modifies" (Hankamer & Mikkelsen, 2005, p. 95). As can be seen in the varying inflection between (14a) and (14b), the noun determines the inflection of the adjective, not the other way around. The adjectival inflection does not remain constant, but changes depending on the gender of the noun: *hús* 'house', being neuter, brings about a neuter inflection, while the adjective shows masculine agreement with a masculine noun such as *maður* 'man'.

(14) ICELANDIC

- a. *gaml-a* *hús-ið*
 old-NEU.W house-DEF
 'the old house'

(Lohrmann, 2011, p. 113)

- b. *gaml-i* *maður-inn*
 old-MASC.W man-DEF
 'the old man'

(Delsing, 1993, p. 28)

A noun on the other hand, does possess all the above-mentioned properties which would classify it as a head: it is unique in the sense that only one noun can occur in a nominal phrase, it is obligatory in that it cannot be omitted (unless in cases of ellipsis), and it controls the inflectional features of the adjective.

Furthermore, the behaviour of prenominal adjectival modifiers shows that they do not head the nominal phrase, as demonstrated by subcategorization and scope. Firstly, an adjective combined with a noun acts as a noun, rather than an adjective (Zwicky, 1985, p. 5). Firstly, what crucially follows from assuming that adjectives are heads is that they subcategorize for a noun (15a). If the adjective functions as a head when these are combined in a phrase, this phrase should be able to carry out the same action and combine with another noun. However, this leads to complete ungrammaticality, as can be seen in (15b).

(15a) [red][horses]

*(15b) [red animals][horses]

Instead, an adjective coupled with a noun behaves like an NP would (16a, 17a): it is subcategorized for by a verb to form a VP (16b), and by a preposition to form a PP (17b). The properties of the phrase are thus determined by the noun, not by the adjective, indicating that the noun is the element that syntactically heads the phrase.

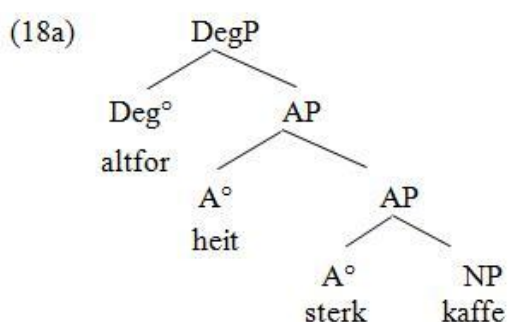
(16a) [feed][horses]

(16b) [feed][red horses]

(17a) [ride [on [horses]]]

(17b) [ride [on [red horses]]]

Secondly, scopal relations between adjectives and degree elements indicate that adjectives cannot head the nominal phrase. As pointed out by Svenonius (1994, pp. 445–6), modifiers can only adjoin to maximal projections. Following head analyses, this would mean that for example in (18a), the modifier *altfor* 'all-too' is adjoined to the adjectival phrase, and "a degree element modifying the first of several adjectives would be expected to take scope over all the other adjectives that follow it" (Julien, 2005, pp. 7–8). However, as can be seen in the translation of (18a) and the corresponding bracketing in (18b), *altfor* only modifies *heit* but not *sterk*. Furthermore, when the adjectives are part of a coordinated AP, they may both be modified (18e). Such a discrepancy is not expected under a head analysis, as the degree element is expected to take scope both over '*heit sterk*' in (18a) as well as over '*heit og sterk*' in (18c), predicting that it would modify both APs in the same way, which it does not.



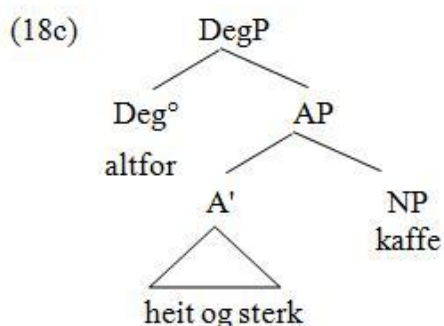
(Adapted from Delsing, 1993, pp. 88, 97)

NORWEGIAN

<i>alt-for</i>	<i>heit</i>	<i>sterk</i>	<i>kaffe</i>
all-too	hot	strong	coffee
'much too hot strong coffee'			

b. [[*altfor* [*heit*]] [*sterk*] *kaffe*]

(Julien, 2005, p. 8)



(Adapted from Delsing, 1993, pp. 88, 97)

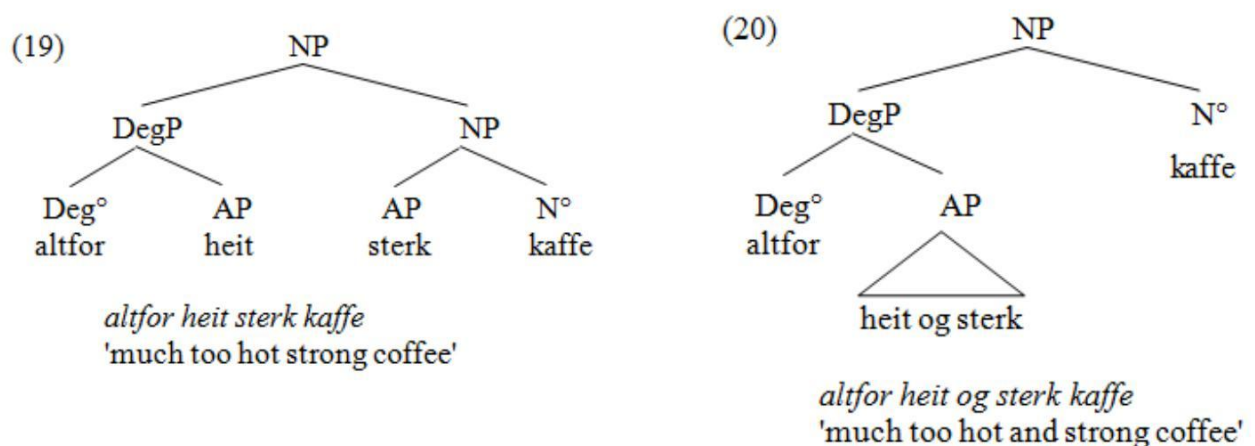
NORWEGIAN

- d. *alt-for* *heit* *og* *sterk* *kaffe*
 all-too hot and strong coffee
 'much too hot and strong coffee'

- e. [[*altfor* [*heit og sterk*]] *kaffe*]

(Julien, 2005, p. 8)

Rather, in an analysis where a nominal phrase with a prenominal adjectival modifier is headed by a noun, these different scopal relations are expected. As a modifying degree element like *altfor* must adjoin to a maximal projection, it can adjoin to only one AP, as in (19). In this way, it only takes scope over one adjective, and correspondingly only modifies one adjective. Likewise, the degree element in (20) can adjoin to the coordinated adjective phrase, and accordingly modify both adjectives.



Aside from the problematic assumption that adjectives head nominal phrases, the notion that adjectives block head movement is not consistent with (the lack of) other head movement operations, both in the nominal and verbal domain. Specifically, with regards to the nominal domain, head movement analyses do not explain what would stop the adjective from moving to the determiner, as pointed out by Hankamer and Mikkelsen (2002). If noun movement is triggered by the need to provide a host for [def], such as Delsing's (1993) proposed Argument Rule, the adjective should suffice. However, A-to-D raising is not observed in Scandinavian languages: the adjective is not allowed to bear the definiteness marking of the determiner phrase (21). To exclude A-raising in Scandinavian, additional rules would have to be added.

(21) *DANISH***røden*

red.DEF

(Hankamer & Mikkelsen, 2002, p. 3)

For instance, Delsing (1993) proposes the existence of an additional head movement parameter pertaining to adjectives to account for the impossibility of A-raising in Scandinavian. He suggests that languages such as Bulgarian, Albanian, and Romanian have a positive setting for head-movement on A and on N, while Scandinavian languages only have a positive setting for head-movement on N (p. 92), such that the word order adjective + article + noun does not occur in Scandinavian, but does in Bulgarian, as can be seen in the example in (22).

(22) *BULGARIAN**chubavi-te ti knigi*

nice-DEF books

'the nice books'

(Zimmerman, 1992, quoted in Delsing, 1993, p. 92, traces added K.D.)

Given that adjectives are unlikely to head nominal phrases for a multitude of reasons, the proposal of an A parameter seems implausible. Furthermore, adjectives do not block head movement in other languages, such as in Romanian (23).

(23) *ROMANIAN**baiati-ul boy- acesta frumos ti*

DEF 'this this nice

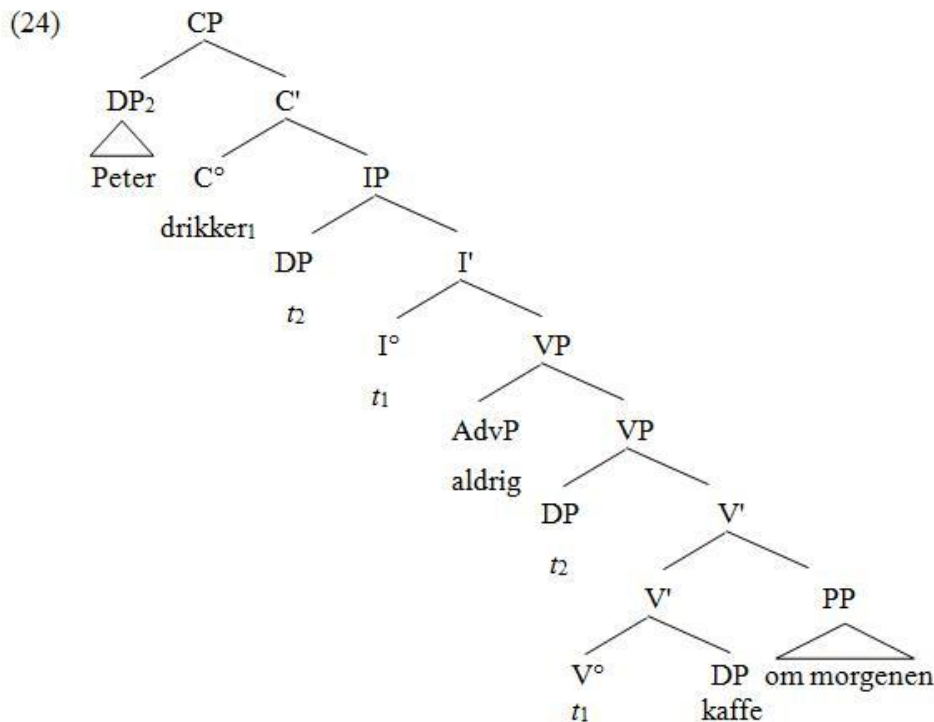
nice boy'

(Haegeman & Guéron, 1999, p. 455, traces added K.D.)

This would entail that adjectives in languages like Romanian have a different status, because they apparently do not block N-to-D movement. To account for languages beyond Scandinavian, then, N-to-D movement analyses have to complicate their analysis in a perhaps undesirable way.

Finally, although Delsing (1993) uses parallels between the verbal and nominal domain to argue for the head status of adjectives (p. 88-9), herein we find a glaring discrepancy: whereas adjectives supposedly block N-to-D movement because they are heads,

adverbs do not block verb movement, as V2 in Danish regularly involves movement of the verb across the adverb. As can be seen in (24), *drikker* moves from its base-generated position in V° across the adverb *aldrig* to ultimately land in C° .



Peter drikker aldrig kaffe om morgenen
 'Peter never drinks coffee in the morning'

Modified verb phrases are not headed by their modifier; the adverb does not dominate but is adjoined to the verb phrase. It is unclear why modified noun phrases would be headed by their modifier, and why the nominal domain would differ from the verbal domain in this respect.

To conclude, the notion that adjectives head nominal phrases seems to oppose both general syntactic principles as well as cross-linguistic observations. Adjectives do not possess the typical properties possessed by syntactic heads, nor does their behavior place them in this category. N-to-D movement analyses cannot explain why A-to-D movement does not occur in Scandinavian, but does in other languages, and more challengingly, why adjectives do not seem to block N-to-D movement in other languages. Additional rules would have to be stipulated to capture this varying behavior while still maintaining the notion of N-to-D movement and adjectives as heads. Furthermore, they do not account for the discrepancy between adjectives and adverbials, and why one would block head movement while the other

does not. The implausibility of the two crucial pillars on which N-to-D movement analyses are based, namely the notion that adjectives are heads and that they function as a blockade against head movement, thus seems to destabilize the entire theory. Subsequently, a closer look will be taken at a classical instantiation of N-to-D movement, namely Delsing's (1993) SpecA analysis.

2.3 Delsing's (1993) SpecA Analysis

One of the key proponents of N-to-D movement is Delsing, (1993), which has briefly been discussed in the preceding section offering more general criticism on N-to-D movement analyses. The specifics of his analysis will be examined below, with particular attention to how his analysis holds up for Danish and Icelandic.

2.3.1 A brief outline of Delsing's (1993) proposal

The crux of Delsing's proposal is that languages with and without suffixed determiners can be distinguished by means of an “N-raising parameter” (Delsing, 1993, p. 145), which, if set positively, makes head movement of the noun possible, as it does in Scandinavian. The same syntactic structure is proposed to underlie all Scandinavian languages, namely what he has termed the 'SpecA analysis'. As is characteristic of N-to-D movement analyses, the adjective is assumed to head the nominal phrase. Thus far, his analysis falls neatly in line with other proposals based on N-to-D movement, such as Embick and Noyer (2001). Particular to Delsing's analysis, though, is that the noun is analyzed as the specifier of the adjective, which unconventionally is located towards the right of the head. To account for the variation within Scandinavian languages, two additional sources of contrast are proposed: (a) where definiteness is base-generated, and (b) how the noun phrase can be identified.

(a) Icelandic, Swedish, Norwegian, and Faroese are argued to have their article base-generated on the noun, while the article's origin in Danish is in D. Importantly, N-to-D movement of unmodified nominal phrases is thought to occur in all Scandinavian languages, because of the “Argument Rule: All arguments must have a filled determiner position at S-structure” (Delsing, 1993, p. 65). Adjectives again block head-to-head movement in prenominal adjectival modified nominal phrases, necessitating an expletive article to be inserted in D. Consequently, this leads to double definiteness: both a preadjectival and suffixed article co-occur in Swedish, Norwegian, and Faroese modified nominal phrases.

(b) Though all Scandinavian languages are argued to have noun movement because D must be occupied, they differ in how they license the D-position. Icelandic is argued to

behave differently due to its rich morphology: the “overt inflection in gender, number and case seems to be enough to identify the noun phrase, without having to lexicalise the D-position” (Delsing, 1993, p. 131). The suffixed article, which is base generated on the noun, is the only article in an adjective phrase as no expletive preadjectival article needs to be inserted. Conversely, Danish, Swedish, Norwegian, and Faroese do not have this option available, but can license the D-position either by means of an expletive article or do not need to if the noun has been identified because it has been previously mentioned in the discourse.

This parametric variation leads to the following table in (25). Note that the Scandinavian varieties are not grouped in the classical manner, as the *single definiteness* languages Danish and Icelandic do not fall into the same category. The *double definiteness* languages Swedish, Norwegian, and Faroese do pattern alike, though.

(25) Delsing’s (1993) Three Parameters (Based on Delsing, 1993, p. 132)

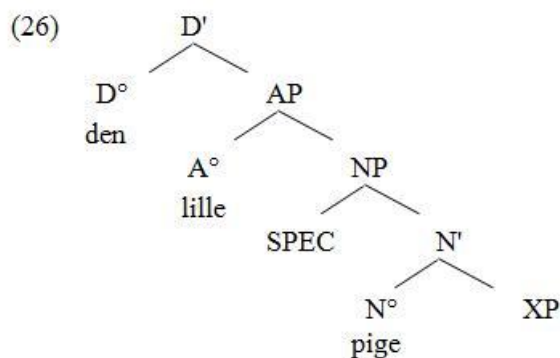
	N-to-D movement	Definiteness in N	Identification
<i>DANISH</i>			
<i>den gamle man</i> DEF old man 'the old man'	+	-	Expletive/Discourse
<i>SWEDISH</i>			
<i>den gamle mannen</i> DEF old man-DEF 'the old man'	+	+	Expletive/Discourse
<i>ICELANDIC</i>			
<i>gamli maðurinn</i> old man-DEF 'the old man'	+	+	Morphology

2.3.2 Problems with Delsing (1993)

In addition to the general problems associated with N-to-D movement analyses, there are a few clear inconsistencies particular to Delsing's analysis which render it an unlikely account of Scandinavian languages.

Though both the problematic notions of adjectives as heads and adjectives as heading the nominal phrase have been explored above, an even more unlikely addition to this theorem is that adjectives take nouns as specifiers to their right. In contrast to Abney (1987), who

proposes that nouns are complements to the adjective, Delsing's syntactic structure is as in (26).



(Based on Delsing, 1993, p. 81)

DANISH

<i>den</i>	<i>lille</i>	<i>pige</i>
DEF	little	girl
'the little girl'		

(Stroh-Wollin, 2011, p. 36)

This is supposedly motivated by spec-head agreement between the adjective and the noun. As pointed out by Hankamer and Mikkelsen (2002), his analysis of adjectives is opposite the “general head-directionality” of Danish (p. 3). Danish is broadly viewed as being left-headed, with specifiers towards the left of the head and complements to the right. Though it is not essential to N-to-D movement analyses, as Embick and Noyer (2001) for instance assume that nouns are the complement of the adjective, Delsing’s proposal raises additional objections by analyzing nouns as right-headed specifiers to the adjective.

With regards to Icelandic, the notion of noun movement and identification by rich morphology seems to be internally inconsistent. In Delsing's analysis, Icelandic is the only Scandinavian language able to license the D-position by means of rich morphology, which would identify the noun phrase and eliminate the need to insert an expletive article. It is unclear from his proposal whether the Argument Rule entails that the D-position has to be syntactically or phonologically filled, but it will be assumed that Icelandic somehow fills the D-position with a phonologically null element in the syntax. Also having the article base-generated on the noun, Icelandic is supposed to be distinct from double definiteness languages because of its rich morphology, leading to only one article. However, this leads to the question why the noun would need to move at all in Icelandic, if its morphology relieves the demand for it. If noun movement is motivated by the need to fill the D-position, but Icelandic can somehow escape this rule by virtue of its morphology, it is unclear why it would move at all in unmodified nominal phrases. Additionally, an expletive article does occur with

prenominal adjectival modifiers in formal contexts, in which the suffixed article is also omitted (27).

(27) ICELANDIC

Hið langa kvæði var DEF long frekar leiðinlegt
poem was 'The long poem was rather boring
rather boring.'

(Thráinsson, 2005, p. 97, quoted in Perridon & Sleeman, 2011, p. 9)

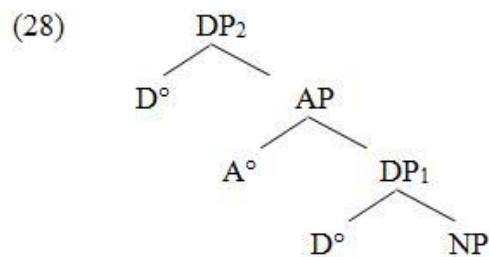
Icelandic simply does not fit neatly into his proposal, yet Delsing still maintains that Icelandic has N-to-D movement as well as its article base-generated on the noun, at the same time admitting that he "lack[s] independent support for this claim" (Delsing, 1993, p. 129).

In summary, in addition to the more general objections against N-to-D movement analyses, Delsing's (1993) analysis does not seem to be harmonious with Danish's head-directionality nor with Icelandic determiner behavior as a whole. Perhaps Scandinavian determiner phrases can better be accounted for with a more complex syntactic structure, which will be explored in the next chapter.

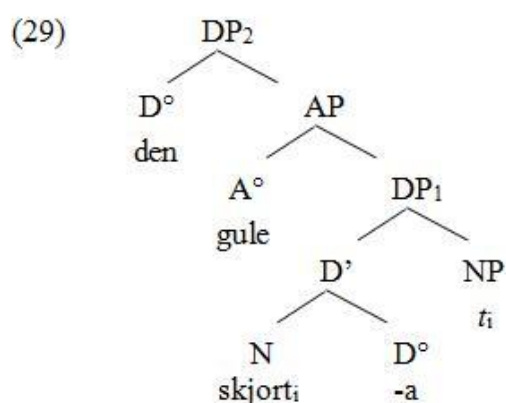
Chapter 3: The Split DP Hypothesis

3.1 Outline of the Split DP

Alternative to N-to-D movement analyses, different syntactic structures have been proposed to capture the behaviour of Scandinavian determiner phrases. In line with Rizzi's (1997) Split CP hypothesis, the DP has been argued to be split into different functional projections. Sometimes called a double DP, in nominal phrases modified by a prenominal adjective, one D-layer would be located above the AP, while the other D would reside below the AP, as illustrated in (28).



Different proposals have been put forward in line with this hypothesis for a multitude of languages, varying in the number of functional projections D splits into as well as in the heads hosting these functional projections (Ihsane & Puskás, 2001; Löbel, 1994). A split DP has also been argued to underlie Scandinavian languages, mainly inspired by the occurrence of double definiteness in Swedish, Norwegian, and Faroese. As illustrated by means of a Norwegian example in (29), the preadjectival determiner *den* occupies the higher DP, while the postnominal determiner *-a* sits in the lower DP. Importantly, N-to-D movement still occurs, as the noun *skjorta* ‘shirt’ moves to the suffixed determiner. This is only to the lower DP, DP₁, however. Contrary to the analyses discussed in the previous chapter, the adjective is not thought to block N-to-D movement as it is placed above DP₁. It could not possibly block the movement operation which occurs below, which is what lies at the heart of N-to-D movement analyses.



NORWEGIAN

<i>den</i>	<i>gule</i>	<i>skjort-a</i>
DEF	yellow	shirt-DEF
'the yellow shirt'		

(Schoorlemmer, 2009, p. 6)

Perhaps a split DP seems a more obvious analysis for double definiteness languages than for single definiteness languages, but Danish and Icelandic, too, are argued to have both D-projections available. Though they are in complementary distribution, both the preadjectival and postnominal article occur in Danish and Icelandic. As both are possible, a case could be made for the existence of the same syntactic structure for all Scandinavian languages, namely one with a split DP. Such a structure requires an additional explanation for the complementary distribution of determiners observed in single definiteness languages, though.

As will be set out in the following section, arguments in favour of a split DP in Scandinavian generally focus on the semantic features expressed by the two different determiners. This is taken as evidence that the different aspects of definiteness call for a multiplex structure with separate functional projections. This is most clearly discernible in double definiteness languages, but Lohrmann (2010) argues that it is relevant to single definiteness languages as well. Critique on the split DP as well as inconsistencies within Lohrmann's analysis will be addressed in the concluding section.

3.2 In Favour of a Split DP: Function of the Prenominal and Postnominal Determiner

Beyond the mere existence of a prenominal and postnominal determiner in Scandinavian languages, they are argued to project separate functional projections because of their semantic contributions to the DP. Double definiteness languages illustrate that different morphemes in

the DP express different aspects of definiteness. Particularly, Lohrmann (2010) argues that the preadjectival determiner and the postnominal determiner bring about discourse reference and specific reference, respectively.⁴ As a modifier, the adjective creates a subset, the referent of which is identified by means of the suffixed determiner, which brings about specific reference. The preadjectival determiner in turn functions to introduce this referent as a new discourse variable. Unmodified DPs such as *huset* ‘the house’ are taken to already have been established in the discourse, and thus do not need to be introduced by the preadjectival article. In contrast, modified DPs such as *det store hus* ‘the big house’ are generally discourse-new and thus need to be introduced. Lohrmann’s main argument and examples will be repeated below.

The preadjectival article is claimed to function as an instrument to introduce a new discourse referent, which the following Norwegian example illustrates. While the car with both a preadjectival and suffixed determiner in (30a) can either be familiar or unfamiliar to the discourse participants, the car with only a suffixed determiner in (30b) would rather only be used if the car is familiar to all participants. That is, the hearer will already have known about the “unique new car in the universe of discourse” (Julien, 2005, p. 33). As such, the preadjectival article can only be omitted in cases where the DP has already been established in the discourse. The prenominal article thus functions to introduce the DP as a new discourse variable. Note that both (a) and (b) contain a suffixed determiner, indicating that the difference in discourse reference is caused by the preadjectival determiner.

(30) *NORWEGIAN*

- | | | | | | | |
|----|-----------|------------|-----------|-------------------|------------|---------------|
| a. | <i>Du</i> | <i>kan</i> | <i>ta</i> | <i>den</i> | <i>nye</i> | <i>bil-en</i> |
| | you | can | take | DEF | new | car-DEF |

‘You can take the new car’ [familiar or unfamiliar in discourse]

- | | | | | | |
|----|-----------|------------|-----------|------------|---------------|
| b. | <i>Du</i> | <i>kan</i> | <i>ta</i> | <i>nye</i> | <i>bil-en</i> |
| | you | can | take | new | car-DEF |

‘You can take the new car’ [familiar in discourse]

(Julien, 2005, p. 32)

⁴ Though it is outside of the scope of this thesis, Lohrmann (2010) also includes adjectival inflection as a morpheme which is able to express a separate aspect of definiteness, namely identity [ident]. [ident] projects its own functional projection, FP, which is placed between DP₂ and DP₁. Though it has been left out of the discussion, it has been included in the syntactic structures adapted from Lohrmann (2010) to provide a faithful representation of her proposal.

The postnominal determiner, on the other hand, gives rise to specific reference [sref], as can be observed in the contrast between (31a) and (31b). While in (31a) the suffixed article is optional, because the DP is part of an idiom and thus elicits an abstract interpretation, the suffixed article in (31b) is obligatory, as the DP bears a concrete reading, referring to a specific school. The contrast in (31) shows that the postnominal article is required when the DP refers to a specific rather than an abstract entity, and its function thus seems to be to pick out a specific referent out of the subset that is created by the modified nominal phrase.

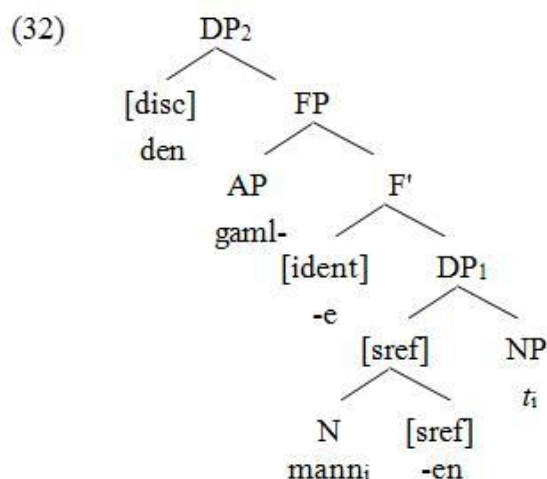
(31) *NORWEGIAN*

a. *Han er en lærer av den gamle skole(-n)*
 he is a teacher of DEF old school-DEF
 'He is a teacher of the old school'

b. *Vi så på den gamle skole*(-n)*
 we saw at DEF old school*-DEF
 'We looked at the old school'

(Julien, 2005, p. 37)

Crucially, if semantic interpretations are to derive from syntax, two separate D-heads thus need to be available to double definiteness languages. The function of the preadjectival determiner, used to introduce a new discourse referent, is distinct from the function of the postnominal determiner, which is used to refer to a specific rather than a non-specific entity. Lohrmann (2010) argues that these features each head their own functional projection, producing a tree structure with a split DP, as illustrated in (32). The higher DP, DP₂, where the preadjectival article *den* is located, is projected by discourse reference [disc], whereas the lower DP, DP₁, is projected by specific reference [sref] and occupied by the suffixed article – *en*. As such, the different features associated with the preadjectival and prenominal article naturally follow from Lohrmann's analysis.



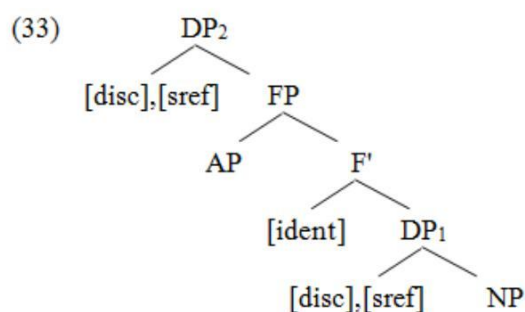
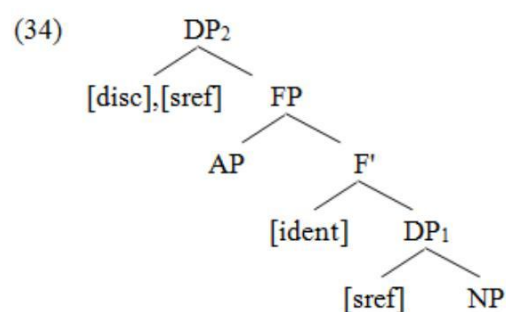
(Based on Lohrmann, 2010, p. 149)

SWEDISH

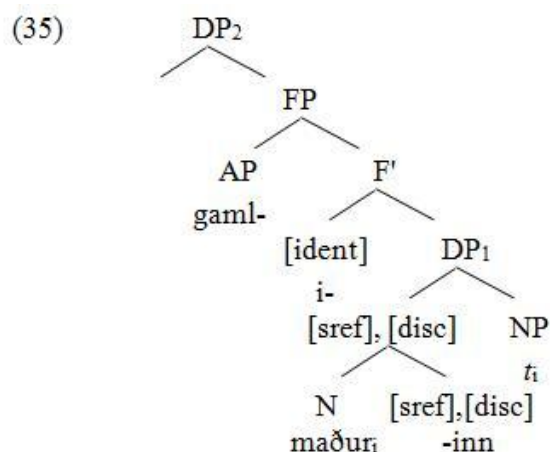
<i>den</i>	<i>gamle</i>	<i>mannen</i>
DEF	old	man-DEF
‘the old man’		

(Delsing, 1993, p. 128)

Importantly, Lohrmann (2010) proposes that the same syntactic structure, namely one with a split DP, underlies all Scandinavian languages. She argues that while discourse reference and specific reference are expressed by means of two separate D-heads in double definiteness languages, these features are allotted differently in Danish and Icelandic. The mere existence of prenominal and postnominal determiners in Danish and Icelandic suggests that they have both D-nodes available. Only one DP is occupied at a time, though, as only one is needed due to the feature distribution of the two DPs. Specifically, Icelandic is proposed to have [disc] and [sref] in both the highest and lowest DP, as can be seen in (33). For Danish, the feature distribution is somewhat different (34): [sref] and [disc] are also united in the highest DP, but DP₁ is only projected by [sref]. Note that the (33) and (34) are only meant to illustrate what features DP₂ and DP₁ are *able* to realize – they cannot be filled simultaneously.

*Icelandic**Danish*

(35) and (36) illustrate how this structure is thought to underlie nominal phrases modified by a prenominal adjective. Though Icelandic has both DP₂ and DP₁ available in order to introduce a new discourse referent and to refer to a specific entity, its preferred option is DP₁. As shown in (35), a suffixed determiner is employed to bring about these features, which generates *maðurinn* ‘the man’. DP₂ is not articulated for reasons of economy (Collins, 1997): as it is not necessary because [disc] and [sref] are already projected by DP₁, it is not allowed.



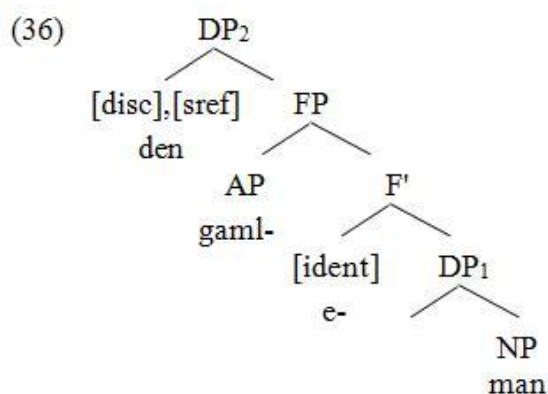
(Based on Lohrmann, 2010, pp. 150–1)

ICELANDIC

<i>gamlir</i>	<i>maður-inn</i>
old	man-DEF
‘the old man’	

(Delsing, 1993, p. 128)

In contrast to Icelandic, Danish cannot realize [disc] and [sref] by means of DP₁. It has to revert to DP₂, which leads the preadjectival article *den* to surface. As [sref] is already indicated by the preadjectival article, the suffixed article (DP₁) does not need to be employed to bring about the realization of this feature and is thus left empty. For all Scandinavian languages, the suffixal nature of the lower determiner supposedly leads to N-to-D movement. As Danish has no suffixed determiner in (36), no movement is thought to occur as the lowest D is not filled.



((Based on Lohrmann, 2010, p. 151)

DANISH

<i>den</i>	<i>gamle</i>	<i>man</i>
the	old	man

‘the old man’

(Delsing, 1993, p. 128)

As the features [disc] and [sref] are collected in one determiner in Lohrmann’s analysis, they are predicted not to be able to be expressed separately while expressing definiteness. This entails that the single definiteness counterparts to (30) and (31) are ambiguous, as we will now see.

In contrast to double definiteness languages, [disc] does not head a separate projection in Danish and Icelandic. Recall that double definiteness languages were able to omit the preadjectival article in cases where the DP did not need to be introduced when it was already familiar to all participants (30b). As the subfeatures of definiteness [disc] and [sref] each head their own projection, double definiteness languages are able to omit the preadjectival article (DP₂). In contrast, no such option is available to Danish and Icelandic: because [disc] and [sref] are collected in the preadjectival article, they do not have the capacity of distinguishing between an old and a new discourse variable. As a result, it is unclear whether the car in (37) is already familiar to the discourse participants, as both languages would use the same determiner in both cases, no matter if the car is familiar or unfamiliar. For Danish, the preadjectival article surfaces (a), while Icelandic still makes use of its suffixed article (b).

(37) *DANISH*

- a. *Du kan tage den nye bil*
 you can take DEF new car
 ‘You can take the new car’

ICELANDIC

- b. *Pu getur tekið nýja bil-inn*
 you can take new car-DEF
 ‘You can take the new car’ (Lohrmann, 2011, p. 116)

Similarly, Danish and Icelandic are unable to differentiate between the absence or presence of specific reference, another subfeature of definiteness. This feature heads its own projection, DP₁, in double definiteness languages, and needs to be projected when the DP should be read concretely (31b) but is optional when the DP bears an abstract reading (31a). This contrastive determiner use is not available to Danish and Icelandic. In Danish, [disc] and [sref] are collected in DP₂ and [sref] singularly projects DP₁. It is thus not possible to distinguish between a specific and nonspecific reading; the preadjectival determiner is used both for the DP *den gamle skole* ‘the old school’ (38a), which is part of an idiom, and for *den gamle skole* (38b), which refers to a specific entity. The determiner cannot be left out, as the nominal phrase still needs to be made definite (Lohrmann, 2010, p. 136). The same result is found in Icelandic, where [disc] and [sref] are united in one D-head. The suffixed article is employed, no matter if the DP bears an abstract (39a) or specific (39b) reading. The different readings of the DPs in single definiteness languages are thus nondistinguishable, and “can only be achieved by context” (Lohrmann, 2011, p. 115).

(38) *DANISH*

- a. *Han er en lærer af den gamle skole*
 he is a teacher of DEF old school
 ‘He is a teacher of the old school’
- b. *Vi så på den gamle skole*
 we saw at DEF old school
 ‘We looked at the old school’ (Lohrmann, 2011, p. 115)

(39) ICELANDIC

- a. *Han er kennari af gamla skóla-num*
 he is teacher of old school-DEF
 'He is a teacher of the old school'

- b. *Við horfðum á gamla skóla-nn*
 we looked at old school-DEF
 'We looked at the old school'

(Lohrmann, 2011, p. 115)

Because the prenominal and postnominal determiner are “of interpretative value” in double definiteness languages (Lohrmann, 2010, p. 34), and are able to bring about [disc] and [sref] separately, they are likely to be the realizations of separate functional projections. In endeavouring to establish a uniform underlying structure for all Scandinavian languages, Lohrmann draws on the semantic contributions of determiners in double definiteness languages to argue for a similar split DP in Danish and Icelandic. It is clear from the ambiguity observed above that these features would need to be distributed differently for single definiteness languages. Lohrmann (2010) proposes that this different feature distribution is the very motivation behind the observed complementary distribution: by combining the principle of economy with the fact that [disc] and [sref] are collected in one D-head, it would not be necessary for both DPs to be articulated. Because the nominal phrase still needs to be made definite, the determiner cannot be left out. As a consequence, only one determiner accompanies a nominal phrase, both in modified and unmodified contexts.

3.3 Arguments Against the Split DP

The Split DP has been criticized more generally for its complexity, as every feature adds to the size of the syntactic structure (Delsing, 1993). Specific to Scandinavian, the Split DP can be seen as a mere descriptive account which does not explain why Scandinavian nominal phrases modified by a prenominal adjective behave in this way (Giusti, 1994). Though Lohrmann’s (2010) semantically motivated split DP might ostensibly seem to avoid this critique, her analysis is in turn problematic for its internal inconsistency when comparing single and double definiteness languages, for its overgeneralisation, and for its lack of explanatory power with regards to both the surface distributions as well as the morphological nature of the two determiners, as set out below.

Lohrmann's (2010) argument is a small-scale contribution to the general trend in linguistics to further encode syntactic and semantic features in syntax, referred to as 'the cartographic enterprise' (Shlonsky, 2010). Elaborate structures have been proposed for both the nominal domain (Cinque, 1993), as well as the verbal domain (Rizzi & Cinque, 2016). This undertaking could be seen as complicating syntactic structure to a perhaps undesirable degree. If every semantic feature were to have its own functional projection, the tree structure could be enlarged with dozens of layers, which contradicts simplicity and might lead to a needlessly complex syntactic structure, as critiqued by Embick and Noyer (2001, p. 581). Furthermore, such a structure would need additional stipulations to account for complementary distribution effects and for the ungrammaticality of overgenerated word orders, which Minimalist theory would raise objections to. This debate between completeness and complexity is beyond the scope of this thesis and will be left as it is.

Split DP analyses which propose two essentially identical DP-layers seem only to describe Scandinavian DPs instead of providing an explanation for their behaviour. For instance, Kester's (1993) proposal that the adjective triggers the realization of both D-heads seems like a restatement of the facts. Lohrmann (2010) argues that it is imperative that the two determiners are analysed as distinct meaningful elements; one cannot be an effect of doubling, agreement, or the insertion of an expletive (Giusti, 1994; Kester, 1993). As such, her proposal avoids the critique of being simply descriptive, as she provides an explanatory account based on why determiners are in complementary distribution in Danish and Icelandic. However, the morphological nature of both determiners is left unexplained: it is unclear why the prenominal article is an unbound morpheme, while the postnominal article has to be bound to a host, an issue which is taken up again at the end of this section. As it is, Lohrmann's analysis does not seem to focus on the apparent blocking effect of adjectives but rather proposes that determiner behaviour in Scandinavian is semantically motivated. This is unlikely to be the case, however, as will be argued for below.

Lohrmann's analysis seems to lack internal consistency when double and single definiteness languages are compared. Single definiteness languages are proposed to only make use of one DP for reasons of economy: as one DP-projection is able to express [disc] and [sref], the use of the other DP-projection is not required and thus ungrammatical. In double definiteness languages, however, the principle of economy does not seem to be adhered to. The Norwegian examples above have shown that the use of determiners in double definiteness languages is sometimes optional; both DP₂ and DP₁ can be used when the features they spell out are not present.

With regards to discourse reference, which projects DP₂, it can optionally be projected when the DP is already familiar to the discourse, as shown above in (30b). It is only required to be articulated by prenominal article when a new discourse referent is introduced (30a). It is curious that DP₂ is articulated when no new variable enters the discourse; that is, the preadjectival article is employed when it is not necessary. Likewise, following economic principles, the optionality of the suffixed determiner in realizing specific reference is not expected. When the DP refers to a specific entity, the suffixed determiner is obligatory, as seen in (31b) above. When the DP bears an abstract reading, the suffixed determiner is optional (31a). It is again puzzling why the determiner in DP₁ is spelled out when the feature specific reference does not need to project a functional projection.

In contrast, following Lohrmann's analysis, the occurrence of only one determiner is supposedly a result of economy. As Icelandic and Danish are able to bring about [disc] and [sref] by means of one DP, they do not need to make use of the other DP, and thus only one determiner surfaces. It is unclear why double definiteness languages would operate on optionality while single definiteness languages follow economy.

More problematically, still, are the predictions that follow from Lohrmann's analysis: particularly for Danish, it seems to overgenerate, as it predicts the possibility of ungrammatical DPs. Recall that she proposes DP₂ to be projected by [disc],[sref] and DP₁ by [sref]. This would entail the suffixed determiner is used in cases where the DP is already established in the discourse and [disc] does not need to be projected. This prediction is not borne out, however. As shown above in (37a), repeated in (40), it is ambiguous whether *den nye bil* 'the new car' is familiar or unfamiliar to the discourse participants. Following Lohrmann's analysis, Danish should be able to distinguish between the two. As DP₁ is projected by [sref], Danish should be able to use the suffixed determiner in cases where the DP is already familiar to the discourse participants. It consistently uses a preadjectival article, though, even if the DP has already been established as a discourse variable.

(40) *DANISH*

<i>Du kan tage</i>	you can	<i>den</i>	<i>nye</i>	<i>bil</i>
take		DEF	new	car

'You can take the new car'

(Lohrmann, 2011, p. 116)

Additionally, Icelandic determiner behaviour is left without a suitable explanation, too. Lohrmann posits that both DPs are projections of [disc] and [sref], and do not need to be

articulated simultaneously. As either determiner is able to express both features, only one surfaces at a time. However, this does not account for what motivates the choice between the two determiners: it is unclear why the suffixed determiner is the preferred option, both in modified and unmodified DPs.

It thus appears that the surface distribution of Scandinavian DPs cannot be semantically motivated; that is, it cannot be that the [disc] and [sref] project the preadjectival and suffixed determiner, respectively. Granted, her analysis does capture the semantic interpretations that the two determiners bring about. A split DP structure offers the possibility of DP-projections which are specialized for certain semantic features, which seems appropriate for double definiteness languages. It is unclear why such a structure would be necessary for single definiteness languages. As demonstrated in (37), (38), and (39), the preadjectival and postnominal article in Danish and Icelandic are not clearly associated with discourse or specific reference, as these sentences are ambiguous. The different semantic contributions of the determiners only become clear when double definiteness languages are examined, which raises the question whether semantic features justify a split DP for single definiteness languages when they are considered in isolation. If the determiners do not each have a specialized function, it is not clear why two DP-layers would be warranted for single definiteness languages.

Lastly, Lohrmann's proposal does not seem to address the morphological nature of the prenominal and postnominal article. Though they are divided into separate projections, it is unclear why the postnominal article has to be bound by the noun, while the prenominal article is realized independently as an unbound morpheme. The cause of this difference remains obscure.

In summary, although complex, a split DP structure might be justified for double definiteness languages, as two DP-projections seem to be required to account for the different semantic contributions of the two articles. It is not clear whether such a structure is necessary to provide a place for the semantic features of determiners in single definiteness languages. Moreover, Lohrmann's (2010) proposal seems more descriptive than explanatory, as the underlying motivation for the projection of two DPs has not been satisfactorily accounted for. Particularly, her proposal does not seem to provide a consistent reason for the articulation of the higher and the lower DP: double definiteness languages seem to operate on optionality, while single definiteness languages adhere to economy. More problematic still is its overgeneralization: the predictions for Danish determiners do not seem to be borne out, nor is the behaviour of Icelandic determiners explained. Though the interpretative value of the

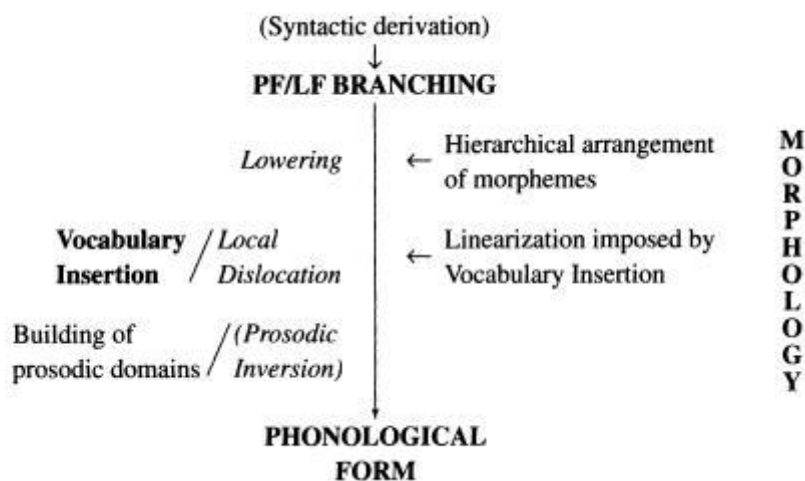
preadjectival and suffixed determiner is certainly a valuable contribution to the discussion of Scandinavian DPs, it seems unlikely that the phenomenon of either double or single definiteness is motivated by semantic feature projections. In addition, the morphological nature of the two determiners is not straightforwardly related to the existence of two DP-projections, which leaves open the question why the prenominal article is realized independently while the postnominal article is suffixed on the noun. An explanation for this difference might be found in proposals which try to account for definiteness marking post-syntactically, which will be examined in the subsequent chapter.

Chapter 4: Distributed Morphology Approaches

So far, the analyses under discussion have tried to account for definiteness marking in nominal phrases by means of syntactic operations and structures. Either relying upon one D-projection or two, they have not been entirely satisfactory in explaining the occurrence of single definiteness in Danish, and the apparent blocking effect adjectives have. Let us examine if post-syntactic approaches fare any better, by considering two Distributed Morphology approaches and how these hold for Scandinavian DPs. Besides prenominal adjectives, other modifiers of the nominal phrase, namely postnominal PPs and relative clauses, will be included to distinguish between the successfulness of both analyses to capture definiteness marking in Danish.

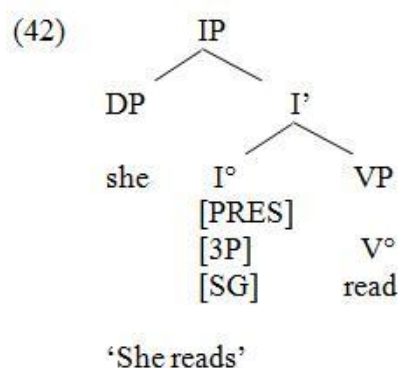
4.1 A brief outline of DM

Others have tried to account for definiteness suffixation in Danish DPs post-syntactically, most actively under the framework of Distributed Morphology (DM). As proposed by Harley and Noyer (2003), DM involves morphological processes that take place after the syntactic derivation. Crucially, it assumes that the output of syntax is purely abstract – that is, terminal nodes do not contain any phonological material, only roots and features. According to the principle of Late Insertion (Harley & Noyer, 2003), Vocabulary Items corresponding to these feature bundles are inserted into the terminal nodes at Spell-Out. They may be underspecified, i.e. they are not required to realize all the features contained in the terminal node, but they are not inserted if a feature mismatches. Combined with the Subset Principle (Halle, 1997), the most specific form is selected, which may result in the insertion of a default or ‘elsewhere’ form if there is no more specific Vocabulary Item available meeting those features. These features do not have to occupy the same syntactic head, but may be spelled out in the same phoneme. The principle of Syntactic Hierarchical Structure All the Way Down (Harley & Noyer, 2003) entails that the hierarchical structure remains available to morphological processes in the PF derivation, up to a certain point – Vocabulary Insertion causes the morphemes to be linearized in the sense that the hierarchical structure is flattened. Morphological processes at this point can only operate on linear adjacency, not structural adjacency. The order in which these processes are thought to occur is illustrated in (41).



(41) The PF branch of the grammar, taken from Embick and Noyer, 2001, p. 566

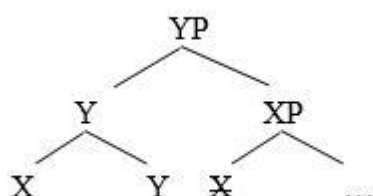
The motivation behind this framework is the idea that “syntactic movement cannot be responsible for certain movement operations” (Embick & Noyer, 2001, p. 556). For example, as set out by Bobaljik (1994), the realization of tense and agreement morphology in English is unlikely to be syntactic (as cited in Harley, 2010). As can be seen in (42), the features [PRES, 3P, SG] occupy a structurally higher position than the verb *read*. Phonologically it is realized as *reads*, which indicates some type of movement. If this movement were to be syntactic, it would involve downward movement of the affix, which is not observed in other parts of the grammar. Rather, in a DM framework, *reads* would be the result of a morphological merger (43).



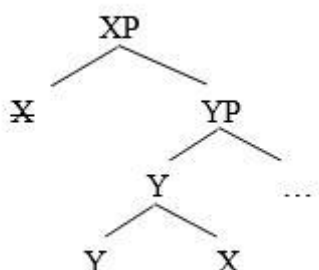
- (43) *Morphological Merger*. At any level of syntactic analysis (d-structure, s-structure, phonological structure), a relation between X and Y may be replaced by (expressed by) the affixation of the lexical head of X to the lexical head of Y. (Marantz, 1988, p. 261, as cited in Harley and Noyer, 2003, p. 475)

As such, two morphemes may be combined by the process of a morphological merger. Harley and Noyer (2003) propose three stages during which a morphological merger may take place: (a) in syntax (*Head Movement*), (b) post-syntactically but occurring before Vocabulary Insertion (*Lowering*), and (c) during or after Vocabulary Insertion when Linearization takes place (*Local Dislocation*) (p. 476). Embick and Marantz (2008, pp. 30–1) have visualized these differences as follows:

- (44) a. *Head Movement* (Head C raises and adjoins to head Y)



- b. *Lowering* (Head X lowers and adjoins to head Y)

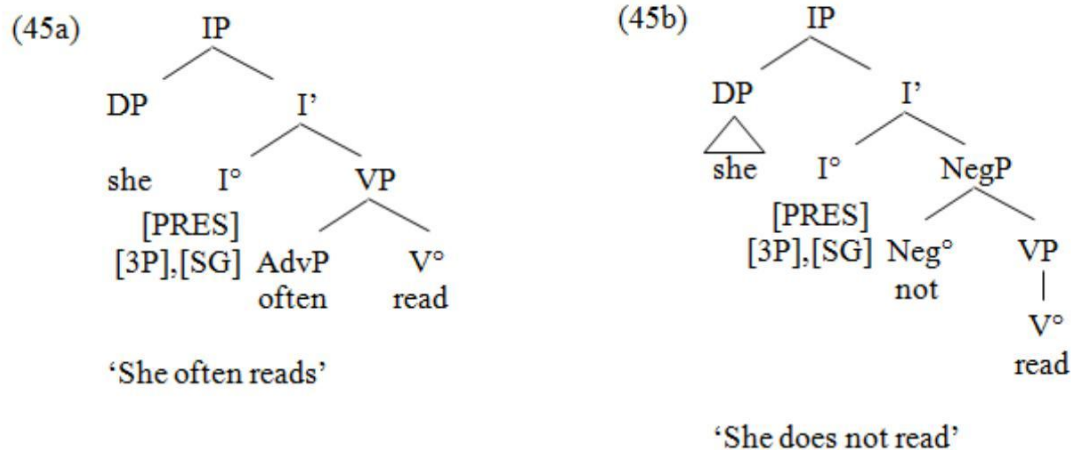


- c. *Local Dislocation* (X adjoins to Y under linear adjacency)

$$X \text{ } Y \rightarrow [[Y]X]$$

These different stages of morphological processes lead to different outcomes of a merger. To illustrate, take the example of English tense lowering on verbs (Harley, 2010). Bobaljik (1994) has argued that this must be a process occurring post-syntactically, yet there is an additional distinction to be made between PF derivations (44b and c). Crucially, in the case of English tense affixation, such an operation must occur before linearization. As can be seen in the difference between (45a) and (45b), this merger is sensitive to structural hierarchy: while an adverb, which is simply adjoined to the verb phrase, does not intervene in the merge operation, negation does, as it heads the negation phrase. In (45b), tense and the verb are not structurally adjacent, which leads to the insertion of dummy *do* to carry the tense morphology of the phrase. Encliticization of English tense morphology thus clearly involves the process of

Lowering. As we will now discuss, determiner suffixation in Danish, as well, has been argued to be the result of a morphological process performed during the PF derivation.



4.2 Scandinavian DPs under the DM framework

Several proposals under the Distributed Morphology framework have been put forward to account for Scandinavian DPs. Head Movement Analyses have already been discussed in the preceding sections. Below, two different Distributed Morphology accounts will be discussed: (1) an analysis of Danish which focuses only on *Lowering* (Hankamer & Mikkelsen, 2018), and (2) an analysis of Danish which solely relies on *Local Dislocation* (Embick & Marantz, 2008).

4.2.1 The Sisterhood Analysis and the Linear Adjacency Analysis

The different stages at which the morphological merger can occur for Scandinavian DPs are articulated in Hankamer and Mikkelsen's (2018) Sisterhood Analysis and Embick and Marantz's (2008) Linear Adjacency Analysis. Both focusing on Danish, they offer different accounts of D-affixation based on the same syntactic structure.

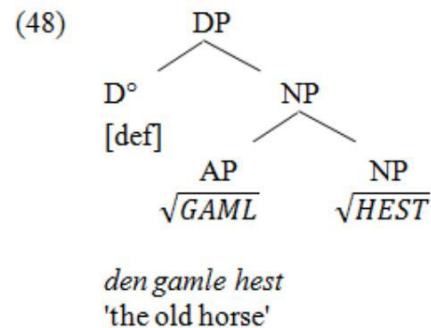
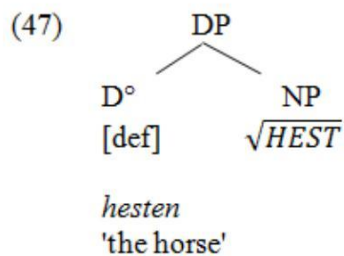
Hankamer and Mikkelsen (2018) have reduced the complexity of their earlier work (2005, 2002) by proposing a single condition:

(46) *The Sisterhood Condition*

A definite D, D[def], is realized as a suffix if and only if it is a sister to a minimal N. Otherwise, D[def] is realized as a freestanding article.

(Hankamer & Mikkelsen, 2018, p. 65)

As such, the merge operation is essentially Lowering: it occurs before Vocabulary Insertion and Linearization, and is thus sensitive to hierarchical structure. The Sisterhood Condition fundamentally refers to the structural relation between D and N. If they are sisters, as in (47), the article is suffixed on the noun. If D and N are not sisters, as in (48), definiteness is expressed in a prenominal article.



(Based on Hankamer & Mikkelsen, 2018, p. 65)

On the other hand, Embick and Marantz (2008) argue that D-suffixation takes place when D and N are linearly adjacent, and stipulate the following Local Dislocation rule:

- (49) *D-suffixation*
 $D[def] \text{ } \bar{N} \text{ } [[N]D[def]]$ (Embick
 & Marantz, 2008, p. 43)

Here, morphological operations only have access to linear adjacency, in that D can only attach to N if it is string-adjacent to it. As can be seen in (50), the adjective *gamle* intervenes between the noun *hest* and the feature [def], which means that D cannot suffix onto N.

- (50) [def_D] [gamle_{AP}] [hest_N] *den gamle hest*

Additionally, both analyses make the same predictions for larger prenominal attributive adjective modifiers. As can be seen in (51), the preadjectival article again surfaces when the nominal phrase is modified by a prenominal adjective which takes a PP such as *af sin datter stolte* (a) and *overfor sælgere vrantne* (b) as its complement. An independent article is expected following the same reasoning as outlined above: D[def] and N are not sisters, and as such are not linearly adjacent either.

(51) *DANISH*

- a. *den af sin datter stolte mor*
 DEF of her daughter proud mother
 'the mother (who is) proud of her daughter'

- b. *den overfor sælgere vrantne mand*
 DEF toward salespeople grumpy mand
 'the man (who is) grumpy towards salespeople'

(Hankamer & Mikkelsen, 2005, p. 96)

As such, both analyses seem to be able to account for the blocking of definiteness suffixation in the presence of an attributive adjective. A way to distinguish between these two analyses is by looking at whether hierarchical structure matters for Danish determiners in cases where D and N are nonlocal, i.e. linearly adjacent but not syntactically adjacent. Importantly, this requires material towards the right of the noun. Following the Linear Adjacency Analysis, this should be of no importance to definiteness marking: as it does not intervene between D and N, a suffixed determiner is expected. In contrast, the Sisterhood Analysis predicts that in cases where it attaches to the noun, preventing D[def] and N from being sisters, it should lead to an independently realized article. Below, these predictions will be put to the test by examining determiner behaviour in postnominal PPs and relative clauses.

4.2.2 Postnominal PPs

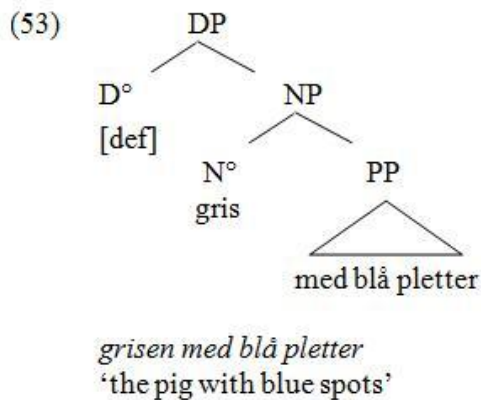
Definiteness marking in Danish nominal phrases followed by a postnominal PP seems to argue in favour of the Linear Adjacency Analysis. As can be seen in (52), the suffixed article is grammatical (a), and the prenominal article is ungrammatical (b).

(52) *DANISH*

- a. *gris-en med blå pig- pletter*
 DEF with blue 'the pig spots
 with blue spots'

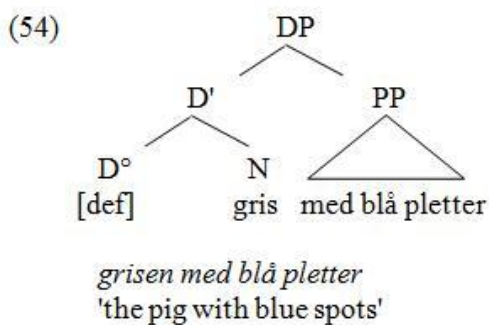
- *b. *den* *gris* *med* *blå* *pletter*
 DEF pig with blue spots
 intended: ‘the pig with blue spots’ (Hankamer & Mikkelsen, 2005, p. 111)

Following the Sisterhood analysis, the exact opposite is predicted: as D and N are not sisters, the prenominal article should surface in the presence of a postnominal PP (53).



(Hankamer & Mikkelsen, 2005, p. 112)

Hankamer and Mikkelsen are forced to analyse postnominal PPs differently, “not [as] complements to N, but adjuncts, and indeed adjuncts to DP, not to NP” (Hankamer & Mikkelsen, 2005, p. 118). As illustrated in (54), the PP *med med blå pletter* is adjoined to the DP, which would correctly predict a suffixed determiner, as D[def] and N are sisters.



(Hankamer & Mikkelsen, 2005, p. 111)

Such a structure might be justified for modifying PPs. As demonstrated in (55) and (56), the PP can be separated from the noun.

- (55) *Hvilken gris mener du? Den med blå pletter.*
 ‘Which pig do you mean? The one with blue spots.’

(56) *Hvordan er grisen mærket? Med blå pletter.*

‘How is the pig marked? With blue spots.’

While such a structure is possible for a modifying PP, it is certainly implausible for nominal phrases accompanied by argument PPs, which behave in the exact same way with regards to definiteness marking, as can be seen in (57).

(57) *DANISH*

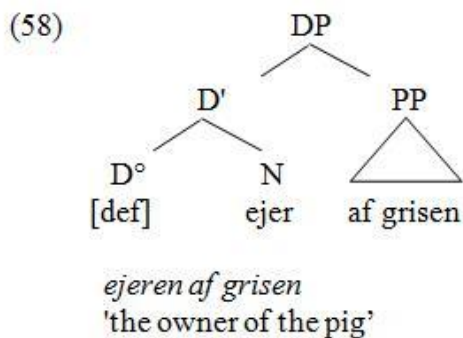
a. *ejer-en af gris-en*
owner-DEF of pig-DEF
‘the owner of the pig’

*b. *den ejer af gris-en*
DEF owner of pig-DEF

Intended: ‘the owner of the pig’

(Hankamer & Mikkelsen, 2004, p. 7)

Hankamer and Mikkelsen are required to adopt a similar analysis for argument PPs, such that both modifying PPs (54) and argument PPs (58) adjoin to DP, not to N’, as is more standardly assumed.



(Adapted from Hankamer & Mikkelsen, 2005, p. 111)

It can easily be shown that such a structure is inconceivable for argument PPs. As shown in (59) and (60a, b), the PP *af grisen* is not allowed to be separated from the noun *ejer*.

(59) *Hvilken ejer mener du? *Den af grisen.*
 ‘Which owner do you mean? The one of the pig.’

(60a) **Hvad er han ejeren? Af grisen.*
 ‘What is he the owner? Of the pig.’

(60b) **Hvad er han ejeren af? Grisen.*
 ‘What is he the owner of? The pig.’

The Sisterhood Analysis thus has to refer to an implausible structure for their analysis to work. Though modifying PPs can be accounted for, the same type of definiteness marking in argument PPs suggests that it does not follow hierarchical structure as proposed by the Sisterhood Condition.

In contrast, postnominal PPs under the standard analysis seem to be perfectly accounted for under the Linear Adjacency Analysis: as nothing intervenes between D and N, D-suffixation will apply effortlessly, as in (61).

(61) [**D def**] [N gris] [PP med blå pletter] *grisen med blå pletter*

It thus appears that definiteness marking on nominal phrases accompanied by postnominal PPs follows naturally from the Linear Adjacency Analysis, while the Sisterhood Analysis has to resort to reanalyzing the underlying syntactic structure to maintain their proposal.

4.2.2 Restrictive and Non-Restrictive Relative Clauses

The Linear Adjacency Analysis does not seem to be able to account for definiteness marking in relative clauses, however. To show that definite marking in Danish is indeed sensitive to hierarchical structure, Hankamer and Mikkelsen (2005, 2018) draw on the interpretation of relative clauses. In Danish, relative clauses allow for either a pre- or a postnominal determiner, yet these lead to different readings: while a prenominal article leads to a restrictive reading (62a), a postnominal article leads to a non-restrictive reading for most speakers and a restrictive reading for some (62b).

(62) *DANISH*

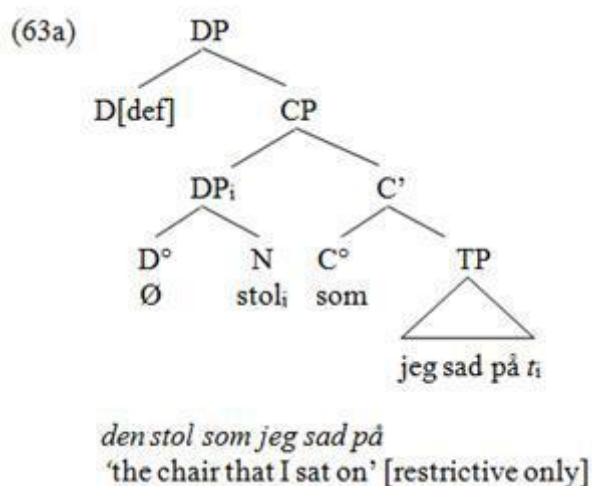
- a. *den stol som jeg sad på*
 DEF chair that I sat on
 ‘the chair that I sat on’ [restrictive only]

- b. *stol-en som jeg sad på*
 chair-DEF that I sat on
 All speakers: ‘the chair, which I sat on’ [non-restrictive]

Some speakers: ‘the chair that I sat on’ [restrictive]⁵

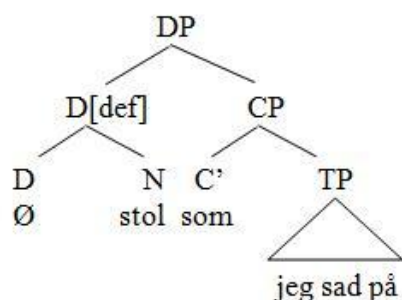
(Hankamer & Mikkelsen, 2018, pp. 68–9)

Hankamer and Mikkelsen (2005, 2018) argue that these different readings are caused by a different tree structure. Following Bianchi (1999, 2000), they analyze relative clauses somewhat controversially. Restrictive relative clauses are complements to D, rather than being adjoined to the DP. Additionally, they propose that a DP moves from the relative clause to Spec-CP (Hankamer & Mikkelsen, 2005, p. 113). As such, the noun *stol* in the restrictive relative clause in (63a) is moved from its base-generated position to Spec-CP, and is importantly not a sister to D[def] at any point. Following the Sisterhood Analysis, definiteness is realized in a prenominal article. In (63b), however, the noun *stol* and D[def] are sisters, resulting in a suffixed determiner.



⁵ This marginal restrictive reading of (62b) will be left out of the current discussion for simplicity’s sake. See Hankamer and Mikkelsen (2005, p. 110) for a possible explanation involving a different syntactic structure for some speakers.

(63b)

*stolen som jeg sad på*

All speakers: 'the chair, which I sat on' [non-restrictive]

Some speakers: 'the chair that I sat on' [restrictive]

(Taken from Hankamer & Mikkelsen, 2018, p. 69)

Hankamer and Mikkelsen (2005) turn to the binding of reflexives in Danish to support DP raising in relative clauses. Their argument and examples will be repeated below.

As can be seen in (64), the third person possessive reflexive *sin* may precede its binder *Harry*, as long as it is c-commanded by its binder from the position it was raised from (Vikner, 1985, p. 23). The reflexive is part of the DP which was raised from the complement of V, a position in which it was in a c-command relationship with its binder. The reflexive is still grammatical when it is topicalized, as it was licensed before it moved.

(64) *DANISH**Preceding context: Harvey knows most of his extended family, but...*[*sin* *yn**g**s**t**e* *f**æ**t**t**e**r*]_k *h**a**r* *h**a**n* *a**l**d**r**i**g* *m**ø**d**t* *t*_k

SELF's youngest cousin has he never met

'His youngest cousin he has never met.' (Hankamer & Mikkelsen, 2005, p. 115)

Likewise, the reflexive *sin* in (65) precedes its binder yet is grammatical. Hankamer and Mikkelsen argue that this is because it was raised to CP-spec from a position where it was c-commanded by its binder *Harry*. The binding relation was licensed at D-structure, as *sin* is part of the DP which base-generated as complement to the verb *acceptere*.

(65) *DANISH*

De [aspekter af sin personligked]j som Harry havde
 the aspects of SELF's personality that Harry had
sværest ved at acceptere tj ødelagde hans karriere
 hardest by to accept ruined his career
 'The aspects of his_i personality that Harry_i had most difficulty accepting ruined his career.'

(Hankamer & Mikkelsen, 2005, p. 115)

However, the reflexive *sin* is not allowed to precede its binder *Harry* when it has not entered a c-command relation with its binder at any point in the derivation. As can be seen in (66), *sin* is part of a DP which is itself the subject of the CP. As such, it has never been in a position to be licensed by its binder *Harry*, and it results in ungrammaticality.

(66) *DANISH*

**De [aspekter af sin personligked]j som tj ødelagde*
 the aspects of SELF's personality that ruined
Harry's karriere var forbløffende fa
 Harry's career were surprisingly few
 Intended meaning: 'The aspects of his_i personality that ruined Harry_i's career were surprisingly few.'

(Hankamer & Mikkelsen, 2005, p. 115)

The contrast between (65) and (66) is argued to show that the DP in the relative clause undergoes raising. An antecedent must enter a binding relationship with its binder, which is allowed to be established at D-structure, as demonstrated by (64). To account for the grammaticality of (65), *sin* must have been raised from a position where it was c-commanded by its binder, as it needs to be licensed. In (66), however, *sin* was not in any point in the derivation c-commanded by its binder, which explains its ungrammaticality. These differences can be explained if the DP in the relative clause has undergone raising.

As such, Hankamer and Mikkelsen provide a convincing argument for the structure in (63a). However, it is unclear why the DP in a non-restrictive relative clause does not undergo raising. The Sisterhood Analysis requires a different structure for restrictive clauses than the commonly accepted where CP adjoins to N', and while this may be warranted, they do not subsequently explain why such an analysis would not apply to non-restrictive clauses.

The Linear Adjacency Analysis is even more earnestly challenged by relative clauses. Here, it should not be possible for variation to occur: no matter if the relative clause is interpreted restrictively or non-restrictively, D and N are linearly adjacent, which means that only a suffixed determiner should be observed (67b), while a prenominal determiner with a corresponding restrictive reading is unaccounted for (67a).

- (67) *a. [**D def**] [_N stol_i] [_{CP} som jeg sad på _{t_i}] *den stol som jeg sad på* [restrictive] b.
 [**D def**] [_N stol] [_{CP} som jeg sad på] *stolen som jeg sad på* [non-restrictive]

Similarly, an additional challenge to the Linear Adjacency Analysis are nominal phrases selecting an argument PP as well as being modified by a restrictive relative clause. As seen in (68b), the nominal phrase is marked with an independent article in this context, contrasting with the suffixed article which marks a nominal phrase in the presence of only an argument PP (68a). As shown in (68c) and (68d), these differences do not have their place in the Linear Adjacency Analysis: the material after the PP should not be of importance, as this does not intervene between N and D.

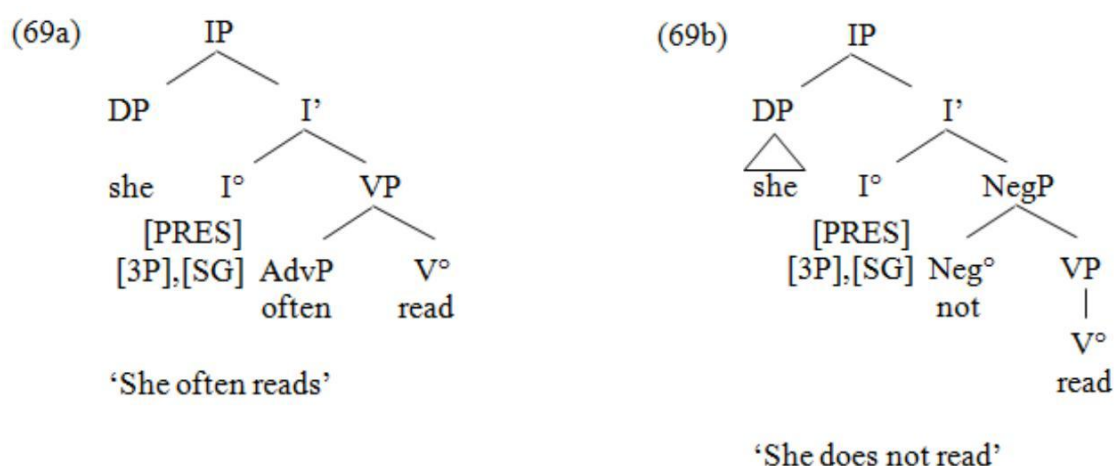
(68) *DANISH*

- a. *ejer-en af gris-en*
 owner-DEF of pig-DEF
 ‘the owner of the pig’
- b. *den ejer af gris-en der kender den bedst*
 DEF owner of pig-DEF who knows it best
 ‘the owner of the pig who knows it best’
- c. [**D def**] [_N ejer] [_{PP} af grisen] *ejeren af grisen*
- *d. [**D def**] [_N ejer] [_{PP} af grisen] [_{CP} der kender den bedst] *den ejer af grisen der kender den bedst*

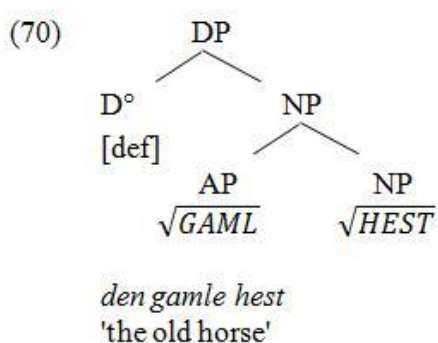
(Based on Hankamer & Mikkelsen, 2004, p. 7)

4.3 Summary

The Sisterhood Analysis has two clear disadvantages: firstly, it does not follow naturally from Distributed Morphology. Hankamer and Mikkelsen argue that definiteness marking is a process which applies during Lowering, before Vocabulary Insertion, as it is sensitive to hierarchical structure. However, they have to posit a separate condition, the Sisterhood Condition, as it does not follow naturally from Lowering operations. Recall that English tense affixation is a typical example of Lowering (45 is repeated below in 69): while an adverb does not interfere with tense marking, as it is simply adjoined to the verb phrase (69a), negation does interrupt tense marking because it dominates the verb phrase (69b). I and V are no longer structurally adjacent, which is why tense cannot be realized on the verb.



In the Sisterhood Analysis, definiteness marking in the nominal domain does not run parallel to typical Lowering processes: it is not a matter of being structurally adjacent, as this would predict that an adjective would not block suffixation, while it characteristically does (70).



(Based on Hankamer & Mikkelsen, 2018, p. 65)

Instead, Hankamer and Mikkelsen propose that it is a matter of “node-sharing”. Embick and Marantz (2008) critique that there are not any known instances where a morphological merger is blocked by intervening material (p. 51). As such, the Sisterhood Analysis does not fit properly into the framework of Distributed Morphology.

A second disadvantage to the Sisterhood Analysis is that it needs to reanalyze syntactic structures to capture the various surface distributions of the determiners while maintaining its Sisterhood Condition. While a DP raising analysis of restrictive clauses might be warranted, an unlikely structure for postnominal PPs needs to be adopted to account for the observed suffixed determiner. This rather makes it seem like their theory is construction-specific, rather than following logically from established principles and structural analyses.

On the other hand, it simply cannot only be a matter of Linear Adjacency. The Linear Adjacency Analysis does not allow for the possibility of both determiners to occur in the same context, as observed in relative clauses. As such, it is hard to decide between a Linear Adjacency Analysis and a Sisterhood Analysis, as paradoxical pattern seems to arise from postnominal PPs and relative clauses. It appears that hierarchical structure matters for definiteness marking in some cases, yet not in others.

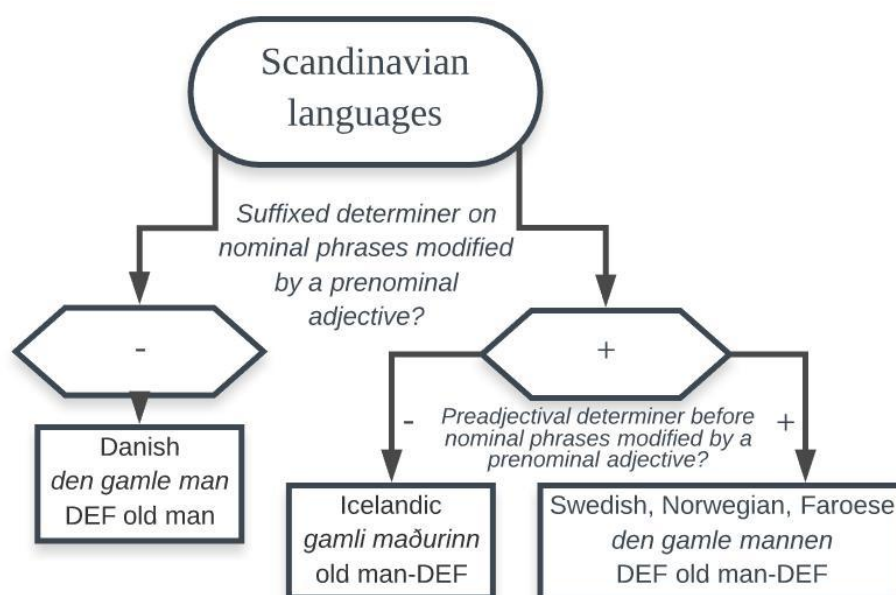
Chapter 5: Evaluation and Future Study

So far, we have considered various proposals trying to account for the behaviour of Scandinavian DPs by means of operations at different stages in the derivational process. Definiteness marking has been argued to take place syntactically, through N-to-D movement (Delsing, 1993; Embick & Noyer, 2001), as well as post-syntactically by means of a morphological merger at different stages (Embick & Marantz, 2008; Hankamer & Mikkelsen, 2018). These approaches have differed in positing either a single or a double DP-layer (Lohrmann, 2010; Santelmann, 1993), as well as varying in the number of Scandinavian languages their analysis is intended to account for.

It is generally agreed upon that some type of movement takes place to yield the suffixed determiner in unmodified contexts, whether this be syntactic N-to-D movement or a morphological merger. The remaining dispute centres around definiteness marking on nominal phrases in modified contexts, which is particularly puzzling in Danish. Additionally, the different semantic contributions of the articles have raised the question how these are brought about. Other modifying constructions such as relative clauses and postnominal PPs have complicated the issue by expanding the data set any successful analysis should capture. Let us evaluate how well each analysis addresses these issues in turn.

5.1 Adjectives

Critically, any account of Scandinavian DPs will have to address the fundamental difference between double and single definiteness languages: the presence or absence of a suffixed determiner when a nominal phrase is modified by a prenominal adjective. The absence of the suffixed determiner in Danish suggests that the adjective has a type of blocking effect. A different division in Scandinavian may therefore be in order, as illustrated in (71).



(71) *New division of Scandinavian languages, based on the absence or presence of a suffixed determiner on nominal phrases modified by a prenominal adjective*

Rather than dividing Scandinavian languages in single and double definiteness languages, it seems more appropriate to group Icelandic with Swedish, Norwegian, and Faroese, while Danish is alone in its apparent blocking effect of adjectives. N-to-D movement analyses have argued that this effect is due to the head-status of the adjective, which prevents the noun from moving to D (Delsing, 1993; Embick & Noyer, 2001). As discussed in Chapter 2, both the hypothesis that adjectives are heads and that they head the nominal phrase are unlikely for independent reasons. Adjectives do not possess the characteristics typically associated with heads, and do not behave like heads either. As such, it seems that these types of proposals do least well in accounting for Scandinavian DPs.

Another group of syntactic analyses has argued for a different structure: rather than one DP-layer, Split DP proposals posit two DP-layers to underlie Scandinavian DPs. As has been discussed in Chapter 3, the explanatory power of these analyses is doubtful. It is uncertain what causes the differing surface distributions of the preadjectival and suffixed article if two DPs are available, and as such, these analyses seem like mere descriptive accounts. In an attempt to justify a Split DP for all Scandinavian languages, Lohrmann (2010) argues that these DP-layers are projected by semantic features. Though such a split DP seems to be warranted to explain for the different semantic contributions of the two determiners in double definiteness languages, the need for such a structure for single definiteness languages

is less apparent. If the same features are able to be expressed by one DP-projection, two might be superfluous. Moreover, her analysis, too, is weakened by its lack of explanatory power, as it is unclear why the two determiners would surface. This critique is related to inconsistency we find when comparing single and double definiteness languages. Though it offers potential, especially with regards to double definiteness languages, a semantically motivated Split DP account does not seem to account for Scandinavian DPs thoroughly. Additional stipulations seem to be necessary in order for Split DP analyses to hold.

Post-syntactic accounts seem to fare best in providing an explanation for definiteness marking on nominal phrases modified by a prenominal adjective in Danish. Under the framework of Distributed Morphology, both a proposal which focuses on the process of *Lowering* (Hankamer & Mikkelsen, 2018) and one which turns to *Local Dislocation* (Embick & Marantz, 2008) are able to provide a satisfactory account. Though the former approach stresses the importance of hierarchical structure, while the latter relies only on linear adjacency, in both proposals the adjective is thought to intervene in the process of definiteness suffixation in Danish. Despite their success, they seem rather language-specific, as it is unclear how other Scandinavian languages with definiteness suffixation would follow from their analysis. For Danish, though, it appears that a post-syntactic account seems the most appropriate.

5.2 Semantic Features

This limited reach of post-syntactic accounts again becomes apparent by their failure to account for the different semantic features that the determiners contribute in double definiteness languages. As set out by Julien (2005) and Lohrmann (2010), the preadjectival article is clearly related to discourse reference whilst the suffixed article is associated with specific reference in Swedish, Norwegian, and Faroese. Though they might fail to explain what would cause the different surface distributions of the determiners, Split DP analyses do at least have a place for these semantic differences. In contrast, the discussed post-syntactic proposals are based on a structure with only one DP-layer. N-to-D movement analyses, too, propose a similar one-layered DP-structure for all Scandinavian languages. If one determiner is not allowed its own functional projection, it is unclear how these differences should arise. As other Scandinavian languages are not addressed in these accounts, this leaves open the question how either definiteness marking or semantic features in double definiteness languages are accounted for in analyses based on one DP-projection.

With regards to single definiteness languages, accounts hinging on one DP-layer face less of a challenge in this respect. As was demonstrated in Chapter 3, the clear semantic differences that arise from the preadjectival and suffixed article in double definiteness languages are ambiguous in single definiteness languages. A split DP might not be needed to provide a place for these semantic features, and as such, being based on one DP-projection is not problematic with regards to single definiteness languages.

5.3 Relative Clauses

These semantic features are again relevant when examining definiteness marking in relative clauses. In addition to adjectives, restrictive relative clauses are another way of modifying the nominal phrase and bear the same consequences for the semantic features involved definite nominal phrases. Similar to adjectives, restrictive relative clauses modify the nominal phrase in such a way that it is new in the discourse, and as such, needs to be introduced. Non-restrictive clauses are thought to add information to a nominal phrase which has already been established in the discourse (Lohrmann, 2010, p. 130). In (72b), for instance, *stolen* ‘the chair’ is already familiar, and does not need to be introduced. DP₂ does not need to be projected by [disc], and accordingly, no preadjectival surfaces. In (72a), however, *den stol* ‘the chair’ is a new discourse participant, and the preadjectival article functions to introduce this new discourse variable.

(72) DANISH

- a. *den* *stol* *som* *jeg* *sad* *på*
 DEF chair that I sat on
 ‘the chair that I sat on’ [restrictive only]

- b. *stol-en* *som* *jeg* *sad* *på*
 chair-DEF that I sat on
 All speakers: ‘the chair, which I sat on’ [non-restrictive]
 Some speakers: ‘the chair that I sat on’ [restrictive]

(Hankamer & Mikkelsen, 2018, pp. 68–9)

However, her analysis applied to restrictive relative clauses in double definiteness languages again encounters the problem of optionality. Though Lohrmann (2010) refers to a Swedish example where the suffixed determiner is left out in the presence of a restrictive

relative clause (p.129), other data show that it is optional. If a restrictive relative clause is able to bring about [sref], it is unclear why it would be possible to have a suffixed article in (73). [sref] does not need to be projected by DP₁ - no suffixed determiner is required and only seems to doubly realize specific reference. [sref] thus seems to optionally project DP₁ in double definiteness languages, both in nouns modified by a prenominal adjective and by a restrictive relative clause.

(73) *SWEDISH*

<i>den</i>	<i>mus(-en)</i>	<i>som</i>	<i>vi</i>	<i>såg</i>
DEF	mouse(-DEF)	that	we	saw
‘the mouse that we saw’ [restrictive]				

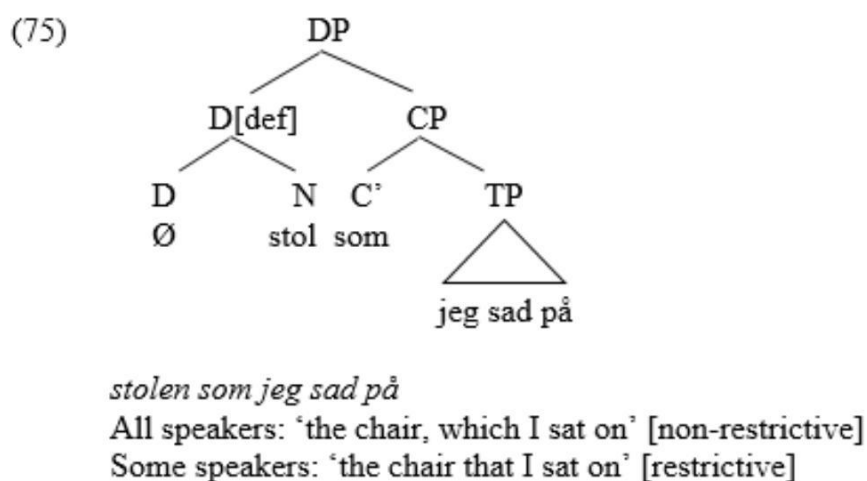
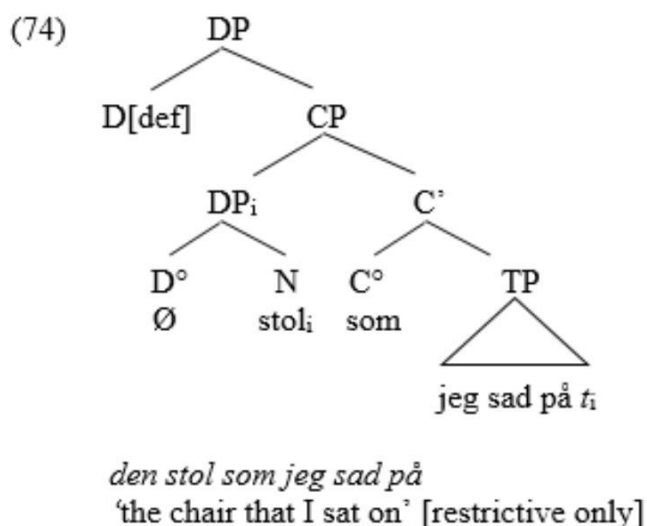
(Börjars, 1998, p. 142 quoted in Hankamer & Mikkelsen, 2005, p. 108)

In a different manner, definiteness marking on nominal phrases modified by relative clauses has also challenged DM approaches. An analysis which solely appeals to linear adjacency, such as Embick and Marantz’s (2008), cannot account for the fact that any material following the noun influences definiteness marking. As such, the difference between definiteness marking with restrictive and non-restrictive relative clauses is not accounted for. While it is generally agreed upon that restrictive and non-restrictive clauses have a different underlying syntactic structure, this should not make a difference if definiteness marking happens at Local Dislocation, where only linear adjacency matters.

On the other hand, a Lowering analysis such as Hankamer and Mikkelsen’s (2018) can refer to syntactic structure to account for the observed differences in definiteness marking. This has its own problems, however, as it requires to the perhaps undesirable adoption of very specific syntactic structures, as detailed in Chapter 4. With regards to restrictive relative clauses, Hankamer and Mikkelsen have argued for a structure in which the DP raises to CP-Spec, as illustrated in (74). Though such an analysis might be warranted, as evidenced by binding relations between a reflexive and its binder, it is unclear why such an analysis would not apply to non-restrictive clauses, which are argued to be structured as in (75).

Nevertheless, if we allow for only a DP-raising analysis of restrictive clauses, which would supply the contrast between (74) and (75), N-to-D movement analyses would make the correct predictions, too. If a suffixed determiner is the result of syntactic N-to-D movement, which, in line with the Head Movement Constraint, can potentially be blocked by a head, it is

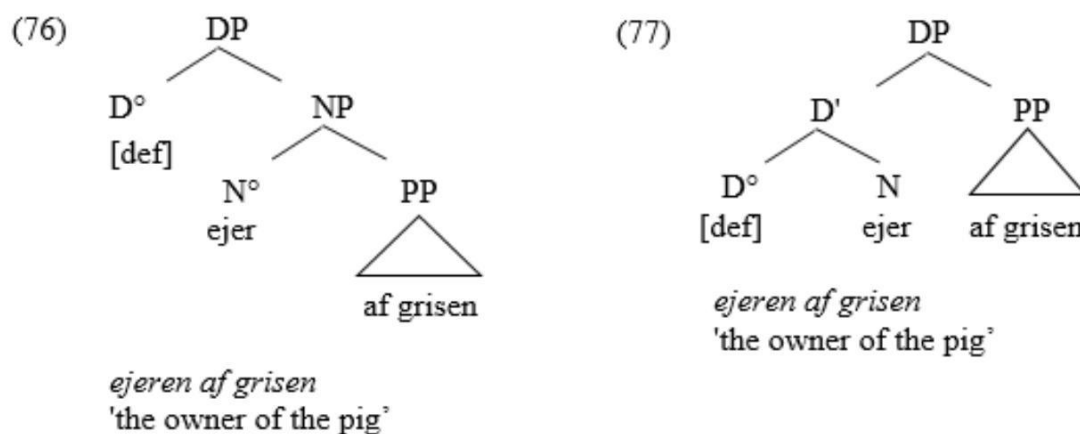
expected that a prenominal article should surface if anything intervenes between N and D. As illustrated in the restrictive clause in (74), D° blocks head movement of N to D, producing *den stol* ‘the chair’. In contrast, no head intervenes between N and D in the non-restrictive clause in (75), and the noun can successfully move to D, which leads to *stolen* ‘the chair’. It thus appears that a DP-raising analysis of restrictive relative clauses needs to be adopted for both a Lowering analysis and a syntactic N-to-D movement analysis to work.



5.4 Postnominal PPs

A different structure, too, needs to be adopted by the Sisterhood Analysis to account for definiteness marking on nominal phrases in the presence of postnominal PPs. Hankamer and Mikkelsen propose that a PP adjoins to D’ (77), rather than to N’ (76), as is more standardly assumed. As has been critiqued in the previous chapter, such an analysis is highly unlikely for argument PPs. As such, definiteness marking on nominal phrases in the presence of postnominal PPs does not seem to be a matter of hierarchical structure.

On the other hand, definiteness marking in PP-contexts seems to follow nicely from N-to-D movement analyses. Even following a more controversial structure, as Hankamer and Mikkelsen's (77), as well as a more standard structure (76), definiteness suffixation is expected. No head intervenes between N and D in either structure, which allows the movement operation to apply successfully.



(Adapted from Hankamer & Mikkelsen, 2018, pp. 71–2)

In a different manner, definiteness marking in PP-contexts is also successfully accounted for by Local Dislocation analyses. Solely relying on linear adjacency, material intervenes between N and D, which allows for D-suffixation to apply effortlessly.

Lastly, it is unclear how definiteness marking on nominal phrases in the presence of postnominal PPs is to be explained by a semantically motivated Split DP. When considering Danish, where only the suffixed determiner *-en* is grammatical as can be seen in (78a), Lohrmann's analysis does not seem to hold. Pursuing her proposal that DP₂ is projected by [disc],[sref] and DP₁ by [sref], it does not follow that the prenominal article *den* (DP₂) in (78b) is ungrammatical. Danish should be able to introduce a new discourse referent and realize specific reference by means of DP₂, and her analysis would thus entail that the prenominal article should be allowed. This is not the case, however, as demonstrated by the ungrammaticality of (78b).

(78) *DANISH*

- a. *ejer-en* *af* *gris-en*
 owner-DEF of pig-DEF
 ‘the owner of the pig’

- b. **den* *ejer* *af* *gris-en*
 DEF owner of pig-DEF
 Intended: ‘the owner of the pig’

(Hankamer & Mikkelsen, 2004, p. 7)

In summary, it thus appears that we are able to conclude that definiteness marking in Danish is governed by syntactic structure in at least some cases. However, none of the discussed analyses seem to be capable of handling the results of the various modifications of nominal phrases. Though N-to-D movement analyses are able to cover postnominal PPs and relative clauses, if some leniency is allowed, they fail on the central problem of definiteness marking on nominal phrases with a prenominal adjective. This puzzle is unlikely to be explained by Split DP analyses, either, because of their lack of explanatory power. Though they do offer a natural way of accounting for the different semantic features contributed by the two determiners in double definiteness languages, a split DP does not seem to be necessary to account for single definiteness languages. Ultimately, post-syntactic analyses fare better in accounting for the main issue at hand, but are challenged by other modifications of the nominal phrase. It rather seems that these approaches complement each other: though one uses the overt realization of determiners to account for semantic features, and the other for determining the underlying syntactic structure and subsequent morphological processes, both of these seem relevant in accounting for definiteness suffixation in Scandinavian DPs. It would be interesting to see to what extent these can be combined and to what degree such an approach would be successful in accounting for the determiner behaviour in a range of other languages.

5.5 Future Study

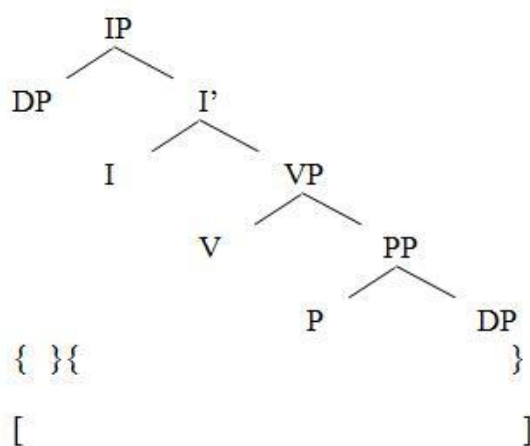
A successful analysis would thus firstly need to address the apparent blocking effect of adjectives in Danish. It seems improbable that this effect takes place syntactically, but is rather more likely to occur post-syntactically. In addition, linearity does not seem to suffice - some access to hierarchical structure needs to be available during the process of definiteness marking in order to account for the paradigm of relative clause modifications. It cannot be

solely governed by hierarchy, either, as demonstrated in the previous chapter by definiteness marking in the presence of postnominal PPs. To account for definiteness marking in Danish, then, a mid-way thus needs to be found, which focuses on post-syntactic processes which can refer to some syntactic structure.

It seems that a potentially fruitful field of study has been left unexplored in this regard, namely prosodic phrases. As will be set out below, such an account holds the promise of capturing the core issue at hand in Danish: it provides the correct predictions for definiteness marking in nominal phrases modified by a prenominal adjective, whilst adhering to the commonly accepted notion that adjectives are phrases adjoined to the NP.

Selkirk (1986) proposes the existence of an additional level between syntax and phonology, namely “P-structure” (p. 372). The prosodic structure which defines this level is derived from syntactic structure but is importantly not identical to it. In essence, P-structure has access to the hierarchical structure as denoted at the syntactic level, and forms its prosodic structure based on syntactic phrases. Every constituent is subsumed in a prosodic domain: whenever a syntactic phrase ends, the prosodic phrase closes off and a new one is opened, which in turn will close off when it encounters the edge of the syntactic phrase. This mapping process is illustrated in (79): as indicated by { }, a prosodic phrase closes off as it encounters the edge of the first DP, and automatically opens a new one. This is in turn closed off by the end of the second DP, which is simultaneously the end of PP, VP, and IP, which are all encompassed in one prosodic phrase.

(79) a. Syntactic



b. Prosodic

{ } { }

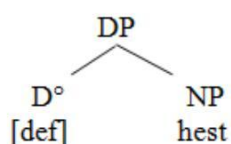
c. Phonetic

[]

Imperatively, Selkirk argues that certain processes may take place in these prosodic domains. it is “end-based” (p. 373), in the sense that processes may still occur between elements as long as the prosodic phrase has not been closed off. This may be especially relevant to definiteness marking in Danish: if definiteness suffixation was a process that

happened at PF, and only occurred when the noun and the determiner are in the same prosodic domain, it would be expected that the adjective blocks this process. As can be seen in (81), an adjective would close off the prosodic domain, thus splitting the noun and the determiner in separate domains. While definiteness suffixation is expected to apply effortlessly in (80), as D and N are within the same prosodic domain, it would be blocked in (81), and lead to a different realization of D.

(80) a. Syntactic



b. Prosodic

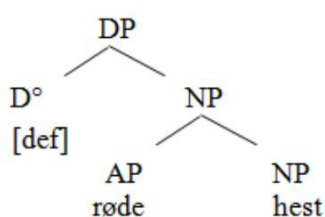


c. Phonetic

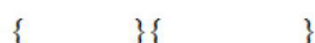
[ˈhɛsdən]

hesten
'the old horse'

(81) a. Syntactic



b. Prosodic



c. Phonetic

[dɛn ˈrøðə ˈhɛside]

den røde hest
'the old horse'

It thus appears that an account focusing on processes between prosodic phrases is able to account for the crucial problem of Danish DPs: definiteness marking on nominal phrases modified by a prenominal adjective. It would be interesting to see how such an analysis holds up when including a wider variety of modifications of the nominal phrase, such as postnominal PPs and relative clauses. The suffixed determiner observed on nominal phrases in the presence of a postnominal PP presents an encouraging outlook. Definiteness marking on restrictive relative clauses, on the other hand, would require more in-depth study, as there do not seem to be any clear differences between the prosodic domains of restrictive and non-restrictive relative clauses, yet these do display differences in definiteness marking. The

further pursuit of this analysis, as well as an attempt to incorporate semantic features, is left for future study.

Though in its infancy, a PF account of D-suffixation might prove to be a helpful addition to the debate of definiteness marking in Danish. While prosodic domains are governed by syntactic structure, they are not exact copies of syntactic phrases. Rather, P-structure is a mid-way between hierarchy and linearity, which allows for processes to occur between material that is within the same prosodic phrase. Access to this semi-linear and semi-hierarchical structure might be what is required for definiteness suffixation to occur successfully. How far this extends to definiteness marking with other modifications of the nominal phrase is left for further study. Additionally, if it is indeed the case that definiteness marking appears to be governed by prosodic domains, it would be interesting to see to what extent this would hold for other Scandinavian languages. As it is, it offers a potential direction of study for the currently unsolved puzzle of Danish DPs.

Conclusion

Definiteness marking in Scandinavian still seems to lack a satisfactory account of the different surface distributions of the prenominal and postnominal article in modified contexts. Though each considered analysis has contributed greatly to the discussion, none appears to cover the complete data set of specifically Danish definiteness marking. Though N-to-D movement analyses address the apparent blocking effect of the adjective on definiteness marking on the noun, the crux of their analysis, namely that adjectives are heads, seems highly unlikely, as adjectives neither qualify as heads in their characteristics nor behaviour. As demonstrated by the different semantic features that the articles contribute, a more complex DP structure might be justified for double definiteness languages. However, Split DP analyses seem to lack explanatory power, and it is not evident why such a structure would be necessary for single definiteness languages. Specifically focusing on Danish, Distributed Morphology approaches seem the most successful in accounting for definiteness marking on nominal phrases modified by a prenominal adjective. They do not naturally extend to definiteness marking on other modified contexts, however, such as relative clauses and postnominal PPs, which would require additional stipulations or the adoption of irregular structures for their proposals to work. Taking all of the advantages of these approaches together, it thus seems that a post-syntactic account with access to a semi-linear structure would offer the most hope of capturing definiteness marking in Danish. Further study is needed to pursue this line of thought, perhaps in the domain of prosodic phrases, in an attempt to fully account for the undetermined motivation for definiteness marking on modified nouns in Danish.

References

- Abney, S. P. (1987). *The English Noun Phrase in its Sentential Aspect*. MIT, Cambridge.
- Bianci, V. (1999). *Consequences of Antisymmetry: Headed Relative Clauses*. Berlin: Mouton de Gruyter.
- Bianchi, V. (2000). The Raising Analysis of Relative Clauses: A Reply to Borsley. *Linguistic Inquiry*, 31(1), 123–40.
- Bobaljik, J. D. (1994). What Does Adjacency Do? *MIT Working Papers in Linguistics*, 22, 1–32.
- Cinque, G. (1993). On the Evidence for Partial N-Movement in the Romance DP. *Working Papers in Linguistics*, 3(2), 21–40.
- Collins, C. (1997). *Local Economy*. Cambridge: MIT Press.
- Delsing, L. (1993). *The Internal Structure of Noun Phrases in the Scandinavian Languages: A Comparative Study*. University of Lund.
- Embick, D., & Noyer, R. (2001). Movement Operations after Syntax. *Linguistic Inquiry*, 32(4), 555–595. <https://doi.org/10.1162/002438901753373005>
- Embick, D., & Marantz, A. (2008). Architecture and Blocking. *Linguistic Inquiry*, 39(1), 1–53. <https://doi.org/10.1162/ling.2008.39.1.1>
- Giusti, G. (1994). Enclitic Articles and Double Definiteness: A Comparative Analysis of Nominal Structure in Romance and Germanic. *The Linguistic Review*, 11, 241–55.
- Haegeman, L., & Guéron, J. (1999). *English Grammar*. Oxford: Blackwell.
- Halle, M. (1997). Distributed Morphology: Impoverishment and Fission. *MIT Working Papers in Linguistics*, 30, 425–49.
- Hankamer, J., & Mikkelsen, L. H. (2002). A Morphological Analysis of Definite Nouns in Danish. *Journal of Germanic Linguistics*, 14(2), 1–23.
- Hankamer, J., & Mikkelsen, L. (2004). A Puzzle about PPs in Danish Definite DPs. In *LSA Annual Meeting*. Boston.
- Hankamer, J., & Mikkelsen, L. (2005). When Movement Must Be Blocked: A Reply to Embick and Noyer. *Linguistic Inquiry*, 36(1), 85–125. <https://doi.org/10.1162/0024389052993664>
- Hankamer, J., & Mikkelsen, L. (2018). Structure, Architecture, and Blocking. *Linguistic Inquiry*, 49(1), 61–84.
- Harley, H., & Noyer, R. (2003). Distributed Morphology. In L. Cheng & R. Sybesma (Eds.), *The Second Glot International State-of-the-Article Book* (pp. 463–96). Berlin: De Gruyter Mouton. <https://doi.org/10.7551/mitpress/9780262019675.001.0001>

- Harley, H. (2010). Affixation and the Mirror Principle. In R. Folli & C. Ullbricht (Eds.), *Interfaces in Linguistics* (pp. 166–186). Oxford: Oxford University Press.
- Ihsane, T., & Puskás, G. (2001). Specific is Not Definite. *Generative Grammar*, 2, 39–54.
- Julien, M. (2005). *Nominal Phrases from a Scandinavian Perspective*. Amsterdam: John Benjamins.
- Kester, E. (1993). The Inflectional Properties of Scandinavian Adjectives. *Studia Linguistica*, 47(2), 139–53.
- Koopman, H., & Sportiche, D. (1991). The Position of Subjects. *Lingua*, 85, 211–58.
- Löbel, E. (1994). KP/DP-syntax: Interaction of Case Marking with Referential and Nominal Features. *Theoretical Linguistics*, 20, 38–70.
- Lohrmann, S. (2010). *The Structure of the DP and Its Reflex in Scandinavian*. University of Stuttgart.
- Lohrmann, S. (2011). A Unified Structure for Scandinavian DPs. In P. Sleeman & H. Perridon (Eds.), *The Noun Phrase in Romance and Germanic* (pp. 111–26). Amsterdam: John Benjamins Publishing.
- Marantz, A. (1988). Clitics, Morphological Merger, and the Mapping of Phonological Structure. In M. Hammond & M. Noonan (Eds.), *Theoretical Morphology: Approaches in Modern Linguistics* (pp. 253–70). San Deigo: Academic Press.
- Perridon, H., & Sleeman, P. (2011). The Noun Phrase in Romance and Germanic Nominalizations: Common Developments and Differences. In P. Sleeman & H. Perridon (Eds.), *The Noun Phrase in Romance and Germanic* (pp. 1–21). Amsterdam: John Benjamins Publishing.
- Rizzi, L. (1990). *Relativized Minimality*. Cambridge: MIT Press.
- Rizzi, L. (1997). The Fine Structure of the Left Periphery. In L. Haegeman (Ed.), *Elements of Grammar: Handbook of Generative Syntax* (pp. 281–337). Dordrecht: Kluwer.
- Rizzi, L., & Cinque, G. (2016). Functional Categories and Syntactic Theory. *Annual Review of Linguistics*, 2, 139–63. <https://doi.org/10.1146/annurev-linguistics-011415-040827>
- Santelmann, L. (1993). The Distribution of Double Determiners in Swedish: Den Support in D⁰. *Studia Linguistica*, 47(2), 154–76.
- Schoorlemmer, E. (2009). *Agreement, Dominance and Doubling*. Leiden University. Selkirk,
- E. (1986). On Derived Domains in Sentence Phonology. In C. Ewen & J. Anderson (Eds.), *Phonology Yearbook* (pp. 371–408). Cambridge: Cambridge University Press. <https://doi.org/10.1017/S0952675700000695>
- Shlonsky, U. (2010). The Cartographic Enterprise in Syntax. *Language and Linguistics*

Compass, 4, 417–29.

Stroh-Wollin, U. (2011). A Semantic Approach to Noun Phrase Structure and the Definite - Indefinite Distinction in Germanic and Romance. In P. Sleeman & H. Perridon (Eds.), *The Noun Phrase in Romance and Germanic* (pp. 127–140). Amsterdam: John Benjamins Publishing.

Svenonius, P. (1994). The Structural Location of the Attributive Adjective. In E. Duncan, D. Farkas, & P. Spaelti (Eds.), *Proceedings of the 12th West Coast Conference on Formal Linguistics* (pp. 439–54). Center for the Study of Language and Information.

Travis, L. (1984). *Parameters and Effects of Word Order Variation*. MIT.

Vikner, S. (1985). Parameters of Binder and of Binding Category in Danish. *Working Papers in Scandinavian Syntax*, 23, 1–61.

Zwicky, A. M. (1985). Heads. *Journal of Linguistics*, 21, 1–29.

<https://doi.org/10.1017/S0022226700010008>