

# Definiteness marking and the structure of Danish pseudopartitives<sup>1</sup>

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The Danish pseudopartitive constructions differ in their possibilities of definiteness marking: the Indirect Partitive Construction (IPC) (D N<sub>1</sub> P N<sub>2</sub>) permits N<sub>1</sub> to bear the definite suffix, while the Direct Partitive Construction (DPC) (D N<sub>1</sub> N<sub>2</sub>) does not; in addition, neither construction permits the prenominal definite article in the absence of a prenominal modifier. Drawing on previous work regarding the morphosyntax of definiteness marking in Danish, we use the distribution of definiteness marking as a probe to illuminate the structure of the pseudopartitive constructions. Our conclusion is that despite superficial similarities the two constructions are quite different in structure, the IPC having a lexical N head and a PP complement, and the DPC a functional n head with an NP complement, forming a single extended projection of N<sub>2</sub>. These assumptions allow us to account for a number of differences in the behavior of these constructions, shedding light on the nature of pseudopartitives as well as on the theory of extended projections.

## I. INTRODUCTION

Like several other Germanic languages, Danish has three partitive constructions:<sup>2</sup>

(i) Regular Partitive Construction

- (1) (a) en af turisterne  
one of tourists-DEF  
'one of the tourists'

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[2] The terms in (i) through (iii) come from van Riemsdijk (1998) and Vos (1999). We use the following glossing conventions: 1 = first person; CL = clitic; COM = common gender; DEF = definite; NEU = neuter gender; PL = plural; PRES = present; SG = singular.

- (b) en gruppe af turisterne  
 one group of tourists-DEF  
 'one group of the tourists'
- (ii) Direct Partitive Construction (DPC) [D N<sub>1</sub> N<sub>2</sub>]  
 (2) en gruppe turister  
 a group tourists  
 'a group of tourists'
- (iii) Indirect Partitive Construction (IPC) [D N<sub>1</sub> P N<sub>2</sub>]  
 (3) en gruppe af turister  
 a group of tourists  
 'a group of tourists'

The DPC and the IPC (=pseudopartitives) exhibit a strong surface similarity: both involve a determiner (D), an N<sub>1</sub> that is a kind of measure noun, and an indefinite mass or plural N<sub>2</sub>. The only immediately obvious difference is the presence of a preposition (either *af* 'of' or *med* 'with') in the IPC. There are, however, a number of less obvious differences between the two, which we shall examine in section 4.<sup>3,4</sup>

The Danish pseudopartitive constructions exhibit an interesting interaction with definiteness marking: IPCs, but not DPCs, allow suffixal definiteness marking on N<sub>1</sub> (Heltoft 1996: 23, Kinn 2001: 147).

- (4) gruppen af turister [IPC]  
 group-DEF of tourists  
 'the group of tourists'
- (5) \*gruppen turister [DPC]  
 group-DEF tourists

We explore this interaction with three goals in mind: first, to provide a solution to the puzzle provided by the definiteness marking facts; second, to fill a descriptive gap in the literature on Germanic pseudopartitive constructions, which have been thoroughly studied in Swedish (Delsing 1993: 185–224), Norwegian (Kinn 2001), English (Akmajian & Lehrer 1976, Jackendoff 1977: 119–126, Selkirk 1977, Guéron 1979, Abney 1987: 187–188, Corver 1998, Schwarzschild 2006, Grimshaw to appear), Dutch (Corver 1998, van Riemsdijk 1998, Vos 1999) and German (Löbel 1989, van Riemsdijk

[3] We will have little to say about the Regular Partitive Construction, which seems to behave in Danish just like its English counterpart (Ladusaw 1982, Hoeksema 1996, de Hoop 1998). Our investigation focuses on the two pseudopartitive constructions DPC and IPC. The DPC is also called a juxtapositional pseudopartitive and the IPC a prepositional pseudopartitive. The term pseudopartitive is due to Selkirk (1977: 302).

[4] Despite superficial similarities, the difference between the IPC and the DPC is fundamentally different from that observed for English *2 liters of oil* vs. *90 degree oil* by Schwarzschild (2002, 2006), and has nothing to do with monotonicity.

1998, Vos 1999), but relatively little studied in Danish (though Daugaard 1994 provides a detailed corpus study); and third, to explore how the definiteness marking phenomena shed light on the structure of these partitive constructions, and also on larger theoretical issues such as the nature of extended projections.

There are several reasons why Danish is well placed to shed light on the structure of partitive constructions: English has only one pseudopartitive construction (the IPC) and only one way to mark definiteness; Dutch and German have both the DPC and the IPC, but only one way to mark definiteness; Danish, however, has both kinds of pseudopartitive construction and two ways of marking definiteness (prenominal article and post-nominal suffix), and definiteness marking behaves differently in the two pseudopartitive constructions. Earlier work (including Delsing 1993; Embick & Noyer 2001; Hankamer & Mikkelsen 2002, 2005; and Julien 2005) has established that definiteness marking is sensitive to structural relations between the definite D head and the N in its complement NP, so that definiteness marking provides a probe into the structure of the nominal projection. We exploit this below.

## 2. THE PUZZLE

The puzzle hinted at in section 1 consists of three interrelated sets of facts. First is that the N<sub>I</sub> of the IPC can bear the definite suffix (6), while the N<sub>I</sub> of the DPC cannot (7):

- |     |   |        |       |
|-----|---|--------|-------|
| (6) | gruppen af turister<br>group-DEF of tourists<br>'the group of tourists' | [=(4)] | [IPC] |
| (7) | *gruppen turister<br>group-DEF tourists                                 | [=(5)] | [DPC] |

If there is a prenominal adjective present, both the IPC and the DPC may have the prenominal definite article:

- |     |  |       |
|-----|--|-------|
| (8) | den store gruppe af turister<br>DEF large group of tourists<br>'the large group of tourists' | [IPC] |
| (9) | den store gruppe turister<br>DEF large group tourists<br>'the large group of tourists'       | [DPC] |

This is as expected, since a prenominal adjective always blocks the suffixed form, cf. Delsing (1993: 75), Embick & Noyer (2001: 58of.), Hankamer & Mikkelsen (2002: 139, 2005: 87f.).

The second puzzling fact is that in the absence of modifiers neither the IPC nor the DPC can have the prenominal definite article:<sup>5</sup>

- (10) \***den** gruppe af turister [IPC]  
       DEF group of tourists
- (11) \***den** gruppe turister [DPC]  
       DEF group tourists

This is puzzling because all previous analyses (including Delsing 1993; Embick & Noyer 2001; Hankamer & Mikkelsen 2002, 2005) have in one way or another analyzed the distribution of the definiteness markers so that the prenominal article is an elsewhere case, arising whenever the definite suffix cannot be realized. Thus the ungrammaticality of (10) is expected given (6), but the ungrammaticality of (11) is a mystery given (7).

The third part of the puzzle is that prenominal definiteness marking is allowed in both IPCs and DPCs in the presence of a restrictive relative clause:

- (12) **den** gruppe af turister som netop ankom [IPC]  
       DEF group of tourists that just arrived  
       ‘the group of tourists that just arrived’
- (13) **den** gruppe turister som netop ankom [DPC]  
       DEF group tourists that just arrived  
       ‘the group of tourists that just arrived’

The first part of the puzzle ((6) vs. (7)) is the main puzzle and we propose a solution to it in section 5, after reviewing a range of relevant properties of the two pseudopartitive constructions in section 4. The solution to the third part of the puzzle (why both constructions can occur with a prenominal definiteness marker in the context of a restrictive relative clause) turns out to follow directly from our earlier proposals about the structure of restrictive relative clauses in Danish (Hankamer & Mikkelsen 2005). We present that solution, together with other consequences of our analysis, in section 6. There we also examine the one remaining part of the puzzle, namely the ungrammaticality of (11), and suggest that it requires a semantic solution. In section 7, we conclude with a brief summary of our analysis, and some pointers toward future research.

### 3. BACKGROUND

#### 3.1 *Definiteness marking in Danish*

We adopt the analysis of definiteness marking developed in Hankamer & Mikkelsen (2002, 2005), according to which the definite suffix is found when

[5] (10) and (11) are both grammatical if *den* is stressed, but then it is unambiguously the demonstrative D, not the definite article.

the definite D is in direct construction with (i.e. sister to) N; the prenominal article is found elsewhere:

- (14) (a) **gruppern**  
 group-DEF  
 ‘the group’

- (b) \***den** *gruppe*  
 DEF group

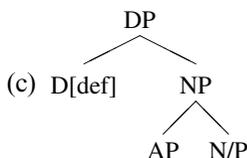
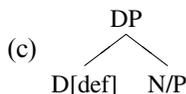
- (15) (a) \***store gruppern**  
 big group-DEF

- (b) **den** *store gruppe*  
 DEF large group  
 ‘the large group’

- (16) (a) **forfatteren** [*til bogen*]  
 author-DEF to book-DEF  
 ‘the author of the book’

- (b) **grisen** [*med blå pletter*]  
 pig-DEF with blue spots  
 ‘the pig with blue spots’

- (17) **den** *forfatter* [*som vandt prisen i fjor*]  
 DEF author who won prize-DEF in last-year  
 ‘the author who won the prize last year’



When there are no modifiers, the definite D is in direct construction with N, as in (14).<sup>6</sup> The definite suffix is licensed, and the prenominal definite article is prohibited. When there is a prenominal adjective, as in (15), the definite D is not in direct construction with N (the NP sister of D is not minimal), and the definite suffix is not licensed; only the prenominal article is possible. In the case of postnominal PP complements and modifiers, as in (16), we assume, following Hankamer & Mikkelsen (2005: 111–113, 118), that such postnominal PPs are always adjoined at some level higher than NP, and consequently the D and N are in direct construction, licensing the postnominal definite suffix. As for restrictive relative clauses, as in (17), we assume that they are derived by a DP raising analysis which insures that the D and N are not in direct construction, thus permitting the prenominal article (Hankamer & Mikkelsen 2005: 113–116). We return to the analysis of relative clauses in section 6.2.

[6] In (14c) and throughout, we use the notation N/P to indicate an NP that is simultaneously minimal and maximal in the sense of Bare Phrase Structure (Chomsky 1994). In (4), the NP is minimal because it contains only the lexical item *gruppe*, and it is maximal because it has no unchecked selectional features. Building on the Alternative Distributed Morphology analysis developed in Hankamer & Mikkelsen (2005), we propose that the latter property is what allows *gruppe* to serve as a complement to D and that the former property is what allows it to bear the definite suffix.

3.2 *The semantic range of pseudopartitives*

As noted in the introduction, pseudopartitives are not unique in involving two nominals. Regular partitives may do so as well, as shown in (18).

- (18) et antal af boligerne [Regular Partitive Construction]  
 a number of homes-DEF  
 ‘a number of the homes’
- (19) (a) et antal boliger [DPC]  
 a number homes  
 ‘a number of homes’
- (b) et antal af boliger [IPC]  
 a number of homes  
 ‘a number of homes’

However, there is an intuitive meaning difference between regular partitives and pseudopartitives: whereas regular partitives refer to a subpart of a whole or a subset of a previously established set (some specific set of homes in (18)), IPCs and DPCs refer to a portion of some substance, collection, or kind (homes in (19)). In a pseudopartitive, N<sub>1</sub> establishes the unit of measurement and N<sub>2</sub> signifies the type of substance or entity that is being measured (Löbel 1989: 155, Koptjevskaja-Tamm 2001: 526f., Schwarzschild 2006: 81). This characterization provides a natural understanding of why the substance noun is definite in regular partitives (*boligerne*), but indefinite in pseudopartitives (*boliger*).

Most studies of pseudopartitives further subcategorize these according to the kind of N<sub>1</sub> involved. Koptjevskaja-Tamm (2001: 530), for instance, distinguishes seven kinds of pseudopartitives based on semantic properties of N<sub>1</sub> (see also the classifications in Delsing 1993: 203–211, Daugaard 1994: 54, van Riemsdijk 1998: 13, and Kinn 2001: 86–101).<sup>7</sup> This subcategorization is relevant for capturing two facts about Danish pseudopartitives: first, whereas the DPC is possible with N<sub>1</sub>s from all seven semantic categories, the IPC is possible only with a subset of N<sub>1</sub> categories; second, which preposition is used in the IPC (*af* ‘of’ or *med* ‘with’) correlates with N<sub>1</sub> categories (see Daugaard 1994: 49f., Koptjevskaja-Tamm 2001: 550, and especially Kinn 2001: 151–179 for relevant discussion). Despite this variation across the seven categories as to whether the N<sub>1</sub> also occurs in IPCs, and if so which preposition is used, all seven categories exhibit a systematic behavior with

[7] Koptjevskaja-Tamm’s categories, with corresponding Danish examples in parentheses, are: conventionalized measures (*liter* ‘liter’, *kilo* ‘kilo’), abstract quantity nouns (*mængde* ‘quantity’, *antal* ‘number’), containers (*kop* ‘cup’, *æske* ‘box’), fractions/parts (*skive* ‘slice’, *stykke* ‘piece’), quanta (*klump* ‘lump’, *dråbe* ‘drop’), collections (*flok* ‘flock’, *gruppe* ‘group’), and forms (*bunke* ‘pile’, *buket* ‘bouquet’).

respect to definiteness marking. No DCPs allow a definite suffix on N<sub>I</sub>, and all IPCs do:

- (20) (a) \*D N<sub>I</sub>-DEF N<sub>2</sub> (for all N<sub>I</sub>s)  
 (b) D N<sub>I</sub>-DEF *af/med* N<sub>2</sub> (for all N<sub>I</sub>s allowed in the IPC)

Thus the semantic subcategorization of pseudopartitives is irrelevant for our purposes: suffixal definiteness marking on N<sub>I</sub> is impossible in DPCs and possible in IPCs, regardless of semantic category. In what follows we will therefore not distinguish these subcategories, except when properties of just one of them are at issue (as in the discussion of inflectional deficiency in section 4.3). As far as we can tell, the remaining parts of the definiteness puzzle (see (8)–(13)) are also observed consistently across all the semantic categories.

#### 4. PROPERTIES OF DANISH PSEUDOPARTITIVES

In this section we lay out the characteristic properties of Danish IPCs and DPCs. The generalization that emerges from these is that N<sub>I</sub> of an IPC behaves like a regular noun, whereas N<sub>I</sub> of a DPC does not. This is the starting point for the syntactic analysis we propose in section 5.

##### 4.1 *Prosody*

As observed by Grønnum (1998: 206), Kinn (2001: 126), and Koptjevskaja-Tamm (2001: 553), N<sub>I</sub> has regular word stress in the IPC, but is destressed in the DPC:

- (21) en 'gruppe af 'turister [IPC]  
 a group of tourists  
 (22) en <sub>0</sub>gruppe 'turister [DPC]  
 a group tourists

In contrast, N<sub>2</sub> carries regular word stress in both the IPC and the DPC.

##### 4.2 *Restrictions on N<sub>I</sub>*

As noted in section 3.2, some items can occur as N<sub>I</sub> in the DPC, but not as N<sub>I</sub> in the IPC. Representative examples are given below:

- (23) en liter (\*af) vand  
 a liter of water  
 (24) et kilo (\*af) smør  
 a kilo of butter  
 (25) et par (\*af) turister  
 a pair of tourists

Daugaard (1994: 49f.) reports that of the 260 items that can occur as N<sub>I</sub> in a Danish DPC, only 95 were also attested as N<sub>I</sub> of an IPC in the DK87-90

corpus of 4 million words that he examined. This clearly indicates that we need to distinguish the N<sub>I</sub> of a DPC from the N<sub>I</sub> of an IPC, even though many items can take on both roles.

#### 4.3 *Inflectional deficiency*

In his study of Swedish pseudopartitives, Delsing (1993: 204) makes the interesting observation that some of the items that can only occur in the DPC are inflectionally deficient in the sense that they do not have a plural form distinct from the singular. The same is true for Norwegian (Kinn 2001) and for Danish, as the following examples show (we know from (23) above that *liter* occurs only in the DPC):

- (26) (a) en liter vand  
           one liter water  
       (b) tre liter vand  
           three liter water  
       (c) \*tre liter-e vand  
           three liter-PL water

This behavior is strongly reminiscent of classifiers, which characteristically occur in plural noun phrases without showing plural agreement. We are not claiming that *liter* is a classifier, but we do take the lack of plural marking to indicate that *liter* is not a regular lexical noun, but rather belongs to some functional nominal category.

Danish exhibits another interaction between plurality and pseudopartitives which to our knowledge has not been observed before. Many items that occur freely as N<sub>I</sub> in DPCs when singular do not occur, or occur much less frequently, when plural. In IPCs, this preference for singular over plural is not observed, as shown in table 1.<sup>8</sup>

Unlike N<sub>I</sub>s like *liter*, which cannot be morphologically plural at all (see (26c)), N<sub>I</sub>s like *pose* can be morphologically plural, but rarely occur in DPCs when plural. The one plural example found with *pose* in the corpus is given in (27):

- (27) Der er faktisk næsten dobbelt så mange **poser** kartofler,  
       there be-PRES actually almost double as many bags potatoes  
       der ikke overholder kravene, som i fjor.  
       that not obey requirements.DEF as in last.year  
       ‘There are actually almost twice as many bags of potatoes that do not  
       meet the requirements as last year.’

[8] Frequency data are from DK87-90, a 4-million-word corpus of written Danish. Similar patterns are found with *bakke* ‘tray’, *bundt* ‘bunch’, *buket* ‘bouquet’, *bunke* ‘pile’, *flaske* ‘bottle’, *kasse* ‘box’, *kop* ‘cup’, *masse* ‘mass’, *pakke* ‘pack’, *samling* ‘collection’, *stak* ‘stack’, and *stump* ‘piece’.

	DPC	IPC
<i>flok</i> ‘flock (sg)’	97	3
<i>flokke</i> ‘flock (pl)’	0	9
<i>gruppe</i> ‘group (sg)’	73	17
<i>grupper</i> ‘group (pl)’	1	21
<i>pose</i> ‘bag (sg)’	29	1
<i>poser</i> ‘bag (pl)’	1	3
<i>stabel</i> ‘pile (sg)’	11	1
<i>stabler</i> ‘pile (pl)’	0	12

Table 1

Corpus frequencies of singular and plural N<sub>I</sub> in DPC and IPC

This example is typical in that plural marking on N<sub>I</sub> is accompanied by some kind of a plural determiner or quantifier (here *dobbelt så mange* ‘twice as many’). Of the 58 examples of DPCs with a plural N<sub>I</sub> that we found in the corpus, 57 involved a plural determiner or quantifier. In contrast, plural N<sub>I</sub>s occur regularly in IPCs without any (overt) plural determiner or quantifier, as in (28).

- (28) Børn samler de sære ting op, som ligger og ser fremmede  
 kids pick the strange things up that lie and see foreign  
 ud på fortovet. Konservesdåser og **poser** med mel.  
 out on side.walk.DEF canned.goods and bags with flour  
 ‘Kids pick up the strange things that are lying on the sidewalk and  
 look unfamiliar. Canned goods and bags of flour.’

We interpret these quantitative patterns to mean that number morphology on N<sub>I</sub> is disfavored by the DPC, but not by the IPC. This can be seen as a second indication that N<sub>I</sub> is less noun-like in the DPC than in the IPC, since regular nouns occur freely in the plural, with or without a plural determiner.

#### 4.4 Agreement

There are two domains of agreement to consider in connection with pseudopartitives: internal agreement (between D and N<sub>I</sub> and/or N<sub>2</sub>) and external agreement (between the pseudopartitive as a whole and other elements in the clause). The latter in particular has played a prominent role in the literature as a key diagnostic for determining the syntactic head of pseudopartitives. In Danish the agreeing features are number (singular vs. plural) and gender (neuter vs. common).

The facts of internal agreement are clear-cut: in both DPCs and IPCs the determiner agrees with N<sub>I</sub> in number and gender, never with N<sub>2</sub>. In (29), for

instance, where N<sub>1</sub> is common gender and N<sub>2</sub> neuter, D must have the common gender form *en*; the neuter form *et* is impossible.

- (29) *en*/\**et*          *spand*          (med) *vand*  
 a-COM/a-NEU bucket-COM    with water-NEU  
 ‘a bucket of water’

The pattern of external agreement, which in Danish is restricted to predicate adjectives, is much less clear. We investigated the judgments of two speakers in some detail (obtaining judgments on 110 examples from each speaker), but the results were inconclusive and we therefore do not report them here.

#### 4.5 Summary

In this section we have established various similarities and differences between the DPC and the IPC in Danish. The two behave similarly with respect to (internal) agreement, but differ with respect to prosody, lexical range, and number inflection. The differences all concern the behavior of N<sub>1</sub> and can be summarized by stating that N<sub>1</sub> behaves like a regular noun in the IPC, but not in the DPC.

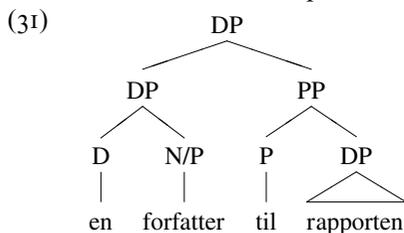
### 5. STRUCTURE OF DANISH PSEUDOPARTITIVES

To account for the facts laid out in section 4, we propose two different structures for the IPC and the DPC. Though we arrived at these structures on independent grounds, the essence of our proposal is strikingly similar to the one Löbel (1989) makes for German pseudopartitives. There are also similarities with van Riemsdijk's (1998) analysis of German and Dutch pseudopartitives, which we discuss in section 6.3.

#### 5.1 Structure of the IPC

Hankamer & Mikkelsen (2005: 118) argue that the structure of a nominal phrase with a complement PP, such as (30), is as in (31), with PP adjoined to DP:

- (30) *en* *forfatter* *til* *rapporten*  
 a author to report.DEF  
 ‘an author of the report’



The motivation given for structure (31) in Hankamer & Mikkelsen (2005) is connected to our analysis of definiteness marking in Danish (cf. section 3.1). If, as we have argued, the primary condition for postnominal realization of the definite morpheme is a sisterhood relation between D and N, we are forced to conclude that postnominal PPs, whether modifiers or complements, must adjoin higher than NP, because their presence does not license the prenominal definite article ((32b) is grammatical if *den* is stressed, but in that case *den* is a demonstrative, not the definite article; see footnote 5):

- (32) (a) *forfatteren* til rapporten  
 author-DEF to report.DEF  
 ‘the author of the report’  
 (b) \**den* *forfatter* til rapporten  
 DEF author to report.DEF

According to standard definitions, of course, these PPs are not complements of N, since they are not sisters of N. They are, however, located within N’s extended projection (in the sense of Grimshaw 1991, 2005) and we assume that they can be selected by N. An alternative, which we have not pursued, would be to assume that these PPs originate as sister to N and undergo an obligatory extraposition (or a version of ‘late merger’ (Fox & Nissenbaum 1999, Fox 2002, Bhatt & Pancheva 2004)) to a higher position in the DP. This is essentially what Julien (2005: 67–69) proposes to account for the use of the definite suffix with argument PPs. If we adopted either of these alternatives, we would have to assume that after such movement there is a reduction in structure (a form of tree pruning (Ross 1966)) in order to guarantee that at the point of Vocabulary Insertion D and N are in direct construction. It seems most straightforward to assume that ‘complement’ PPs are merged initially as adjuncts to DP, and that selection by the lexical head can extend to elements merged in that position.

Our proposal here is that the IPC has this same structure:<sup>9</sup>

- (33) (a) *en* *gruppe* *af* *turister*  
 a group of tourists  
 ‘a group of tourists’  
 (b)
- 
- ```

graph TD
  DP1[DP] --- DP2[DP]
  DP1 --- PP[PP]
  DP2 --- D[D]
  DP2 --- NP[N/P]
  D --- en[en]
  NP --- gruppe[gruppe]
  PP --- P[P]
  PP --- DP3[DP]
  P --- af[af]
  DP3 --- turister[turister]
  style DP3 fill:none,stroke:none
  
```
- en    gruppe    af    turister

[9] A reviewer points out that in view of the fact that the complement of the P in an IPC never has an overt determiner, that complement might be something smaller than a DP. As far as we can tell, such a structure, together with our other assumptions, would account for the IPC data equally well.

Given this structure for the IPC, we expect the following:

- (i) D should agree with N<sub>I</sub>, since N<sub>I</sub> is the head of D's complement.
- (ii) N<sub>I</sub> should have ordinary word stress, since it is a regular noun.
- (iii) N<sub>I</sub> should show plural inflection, since it is a regular noun.
- (iv) N<sub>I</sub>-DEF should be possible in IPCs (as in D–N–PP generally), since D is sister to a minimal NP.

These expectations are all fulfilled: (i) is confirmed by (29), (ii) by (21), (iii) by (34), and (iv) by (6).

- (34) (a) to spand-e med vand  
 two bucket-PL with water  
 'two buckets of water'  
 (b) \*to spand med vand  
 two bucket.SG with water

In short, IPCs share the properties of ordinary N + PP complement constructions, because they have the same structure. This similarity extends to adjectival modification of N. In both IPCs (36) and other N + PP structures (35), N can be modified by a preceding adjective, and when it is, only pre-nominal definiteness marking is possible:

- (35) (a) **den** yngste forfatter til rapporten  
 DEF youngest author to report.DEF  
 'the youngest author of the report'  
 (b) \*yngste forfatter**en** til rapporten  
 youngest author.DEF to report.DEF
- (36) (a) **den** store gruppe af turister [=(8)]  
 DEF large group of tourists  
 'the large group of tourists'  
 (b) \*store grup**pen** af turister  
 large group.DEF of tourists

Under the analysis proposed here, the ungrammaticality of the b. examples is due to the general restriction that the definite suffix is only found when D[def] has as its sister a minimal N. This restriction is not met in the b. examples since the NP sister of D[def] contains an AP modifier.

Two further points deserve mention. First, the restriction on P in IPCs to *af* or *med* can be understood as a case of I-selection; PP is not a classical complement of N<sub>I</sub>, but it can be I-selected because it is within N<sub>I</sub>'s extended projection. Second, since the complement of P is a DP, it should be possible for N<sub>2</sub> to be accompanied by a determiner including a definite article. While we have not investigated the Regular Partitive Construction in detail, it seems reasonable to assume that the Regular Partitive Construction is just what we have when the second DP in the IPC contains a definite article:

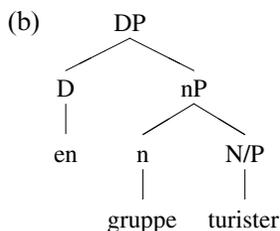
- (37) en gruppe af [turisterne]  
 a group of tourist-PL-DEF  
 ‘a group of the tourists’
- (38) en gruppe af [de netop ankomne turister]  
 a group of DEF just arrived tourists  
 ‘a group of the recently arrived tourists’

## 5.2 Structure of the DPC

The real task is to propose an analysis of the DPC which will account for the ways in which it differs from the IPC. Our proposal, in essence, is that  $N_I$  in the DPC is not a regular N, but a functional category which we will call  $n$ ,<sup>10</sup> which takes NP as a complement.

The DPC, then, is one extended nominal projection in the sense of Grimshaw (1991, 2005), or one M-projection in the sense of van Riemsdijk (1998) and Vos (1999).

- (39) (a) en gruppe turister  
 a group tourists  
 ‘a group of tourists’



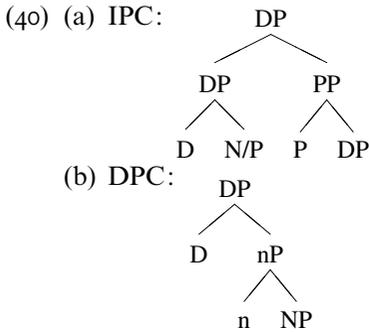
Given the structure in (39), we have a different set of expectations for DPCs as compared with IPCs:

- (i) We expect D to agree with  $N_I$ , just as in the IPC, since  $N_I (=n)$  is the head of D's complement, and we assume that  $n$  has inherent gender features.
- (ii) The prosodic weakness of  $N_I$  is expected since functional categories are typically prosodically weak (Selkirk 1996).
- (iii) Similarly, the inflectional deficiency of  $N_I$  is not surprising since functional categories are often inflectionally deficient (see Roberts & Roussou 2002 and references cited there).

[10] Various authors have proposed nominal functional categories and called them  $n$  (e.g. Julien 2005). Our little  $n$  could be just one of a whole family of little  $n$ 's. Within the literature on pseudopartitives, our  $n$  corresponds fairly closely to Löbel's (1989)  $Q[+N]$  category and to van Riemsdijk's (1998)  $N_S$ .

- (iv) The impossibility of N<sub>1</sub>-DEF follows from the structure (and the general condition on the distribution of the definite suffix reviewed in section 3.1): D[def] is not the sister of a minimal N.
- (v) The impossibility of N<sub>2</sub>-DEF (*\*en gruppe turisterne* ‘a group tourists (def)’) is accounted for, because n takes a NP, not DP, as complement.

We now have a solution to the first definiteness puzzle. Since N<sub>1</sub> of the IPC is a regular N, and the structure of the IPC is just that of a nominal phrase containing a PP complement, the N<sub>1</sub> of the IPC can bear a definite suffix: it is of the right category (N), and occurs in the right configurational relationship with D at spell-out (see (40a)). The N<sub>1</sub> of the DPC cannot bear the definite suffix, on the proposed analysis, because it is not in direct construction with D at spell-out; as (40b) shows, this is because its complement is NP rather than PP, and NP, unlike PP, never adjoins to DP.<sup>11</sup>



In the particular DPC diagrammed in (39), the NP complement of n is minimal, as indicated by the N/P notation. In (40b) we represent the complement of n as NP to reflect the fact that this NP may but needn't be minimal. In particular, the NP complement of n can contain an adjectival modifier, as shown in (41).

- (41) en gruppe [ustyrlige turister]  
       a group unruly tourists  
       ‘a group of unruly tourists’

[11] Under the alternative assumption (discussed in section 5.1), that the PP complements in the IPC arrive at their higher location via extraposition, we would need an account of why NP complements in the DPC cannot similarly extrapose. This, we believe, would not be a serious obstacle, because there are good reasons to believe that NP is not a moveable category. While DPs clearly can move if anything can, and PPs can move out of DPs, NPs are never observed to move out of DPs; also, when there is good reason to assume that a nominal phrase is a bare NP not encased in a DP shell, as in the case of generic objects in Turkish (Eskenazi 1996), those NPs never move. So we think it is not unreasonable to assume that NPs cannot extrapose. If Chomsky's (2001: 14) conjecture that only phases move is correct, this property would follow from the assumption that NP is not a phase.

Similarly, nP can be modified by an adjective, which we take to involve left-adjunction of AP to nP:

- (42) (a) en [stor gruppe] turister  
           a large group tourists  
           ‘a large group of tourists’  
       (b) den [store gruppe] turister [=(9)]  
           DEF large group tourists  
           ‘the large group of tourists’

The analysis also allows us to account for one more fact from section 4, namely that not all nominals that can occur as N<sub>I</sub> in the DPC can occur as N<sub>I</sub> in the IPC. Such nominals (*liter, kilo, par*) exist as n’s, which is why they can occur in the DPC. We might assume that they also exist as N’s, but N’s which do not c-select a PP complement; or, perhaps more radically, that they do not exist as N’s at all. Either way, they would not occur in the IPC.

## 6. CONSEQUENCES

Having accounted for several of the core puzzles concerning the differences between the IPC and the DPC, we now turn to some further consequences of our analysis. In section 6.1 we examine a difference between the IPC and the DPC in the distribution of additive particles, and show that our analysis accounts for this difference straightforwardly. In section 6.2 we examine the interaction between pronominal definiteness marking and relative clauses, and show that the observed behavior follows from independently motivated assumptions about relative clause formation. In section 6.3 we discuss a consequence of our analysis for an aspect of the theory of extended projections. In 6.4 we return to the remaining bit of the original puzzle – the fact that in the DPC, when a relative clause is not present, neither the pronominal definite determiner nor the definite suffix is permitted – and suggest a way to account for this fact that is consistent with our overall analysis.

### 6.1 *Distribution of additive particles*

As observed for Norwegian by Kinn (2001: 150), DPCs and IPCs differ in the possible positions of additive particles like *til* ‘more’. The same is true for Danish. In general, additive particles occur either immediately after D or at the end of the DP:

- (43) (a) en **til** røget fisk  
           one more smoked fish  
           ‘one more smoked fish’  
       (b) en røget fisk **til**  
           one smoked fish more  
           ‘one more smoked fish’

As (44a, b) and (45a, b) show, these two positions are available in both the IPC and the DPC.<sup>12</sup> IPCs, moreover, allow the additive particle to occur between N<sub>1</sub> and N<sub>2</sub> (44c); DPCs do not, as seen in (45c).

## (44) IPC

(a) en **til** gruppe af turister  
 one more group of tourists  
 ‘one more group of tourists’

(b) en gruppe af turister **til**  
 a group of tourists more

(c) en gruppe **til** af turister  
 a group more of tourists

## (45) DPC

(a) en **til** gruppe turister  
 a more group tourists  
 ‘one more group of tourists’

(b) en gruppe turister **til**  
 a group tourists more

(c) \*en gruppe **til** turister  
 a group more tourists

This pattern generalizes to the additive particles *mere* ‘more’ and *ekstra* ‘extra’ and to the ‘subtractive’ particles *mindre* ‘less’ and *færre* ‘fewer’ (the latter will be subsumed under ‘additive particles’ in what follows).

Given the structures for the IPC and the DPC proposed above, we suggest that these facts can be understood as follows. Additive particles right-adjoin

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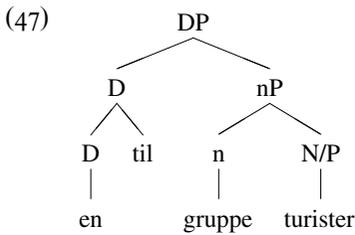
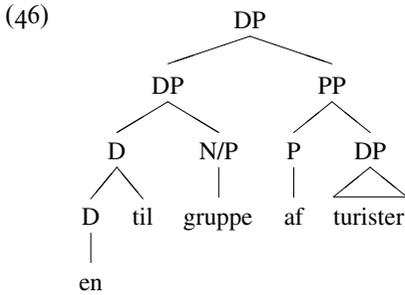
[12] (44b) is slightly less natural than (44a) and (44c). We believe this to be an effect of placing a very light element at the end of a rather heavy phrase. Support for this interpretation comes from two observations. First, the unnaturalness increases as the rest of the phrase grows larger:

- (i) en (til) meget stor gruppe (til) af helt ustyrlige turister (??til)  
 one more very large group more of completely unruly tourists more  
 ‘one more very large group of completely unruly tourists’

Second, the unnaturalness decreases if the particle itself is heavier. Thus replacing monosyllabic *til* in (44b) with disyllabic *ekstra* (extra) restores it to full acceptability.

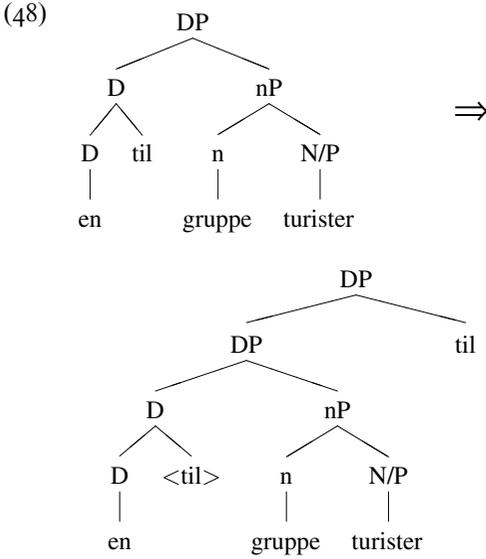
Placing *til* phrase-finally in the DPC corresponding to (44b), as in (45b), is not associated with any unnaturalness. We can see three possible reasons why DPCs are different from IPCs in this respect, all of which are consistent with what we say about (44b) above. First, there is less material preceding *til* in (45b) compared with (44b). Second, and more importantly, there is only one stressed element separating D and *til* in (45b), namely *turister*, whereas there are two in (44b): *gruppe* and *turister* (see examples (21) and (22) in section 4.1). Finally, and rather speculatively, it is conceivable that the lack of an intermediate position for *til* in DPCs improves the acceptability of having *til* in final position. More work is needed to establish which, if any, of these three factors are involved and how they might interact. For present purposes we continue to assume that (44b) and (45b) are both grammatical and that whatever contrast native speakers perceive between them can be understood in terms of one or more of the factors mentioned above.

to D, in essence creating a complex quantifier. If no further operations target the additive particle, we have the structures in (46) and (47), which give rise to (44a) and (45a), respectively.

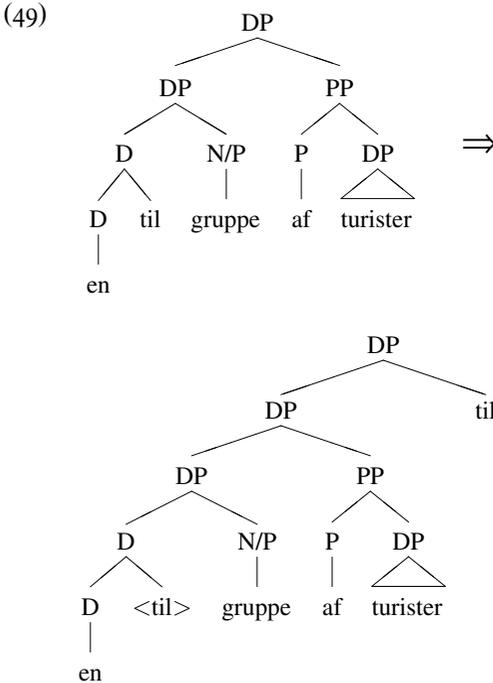


We further propose that additive particles may extrapose to right-adjoin to DP.<sup>13</sup> The ability of these particles to adjoin either to a head (D<sup>0</sup>) or to a maximal projection (DP) could be understood as a consequence of such particles’ being simultaneously minimal and maximal in the sense of Bare Phrase Structure (Chomsky 1994), and hence able to behave either as heads (X<sup>0</sup>s) or as maximal projections (XPs). For DPCs, extraposition of the additive particle yields the derivation in (48), which corresponds to (45b).

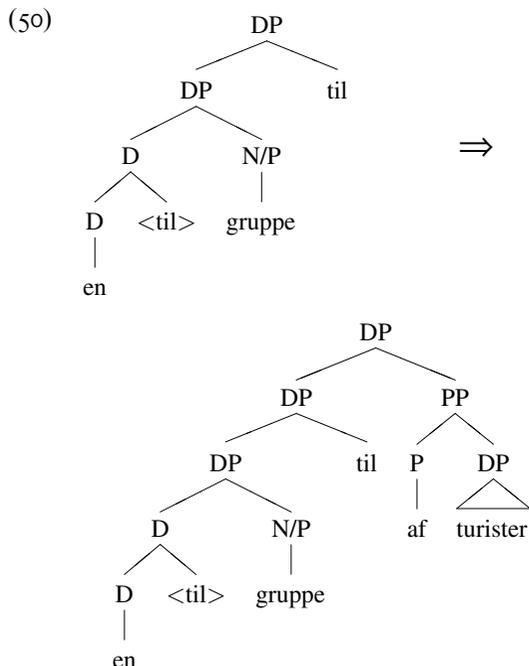
[13] A reviewer questions why a light particle like *til* should extrapose at all. The observations in footnote 12 lend some support to the idea that extreme rightward (i.e. phrase-final) positioning of these particles is sensitive to weight, at least when it comes to judgments of naturalness. On the other hand, rightward movement of light elements is not unknown: on at least one conception, English Particle Movement involves rightward movement of a light particle, and in Irish prosodically weak pronouns move to the right (see McCloskey 1999 and references cited there). It is also worth noting that our account of the contrast in particle position in the DPC and the IPC does not depend on extraposition per se. One could alternatively assume that additive particles may adjoin either to D<sup>0</sup> or to DP. In that case the account of (44b) and (44c) proposed below should be restated in terms of the relative timing of the adjunction of the particle and of the PP to DP.



For IPCs there are two options, depending on whether extraposition of the additive particle precedes or follows adjunction of the PP. (49) gives the derivation where particle extraposition follows PP adjunction. This results in (44b):



If instead the particle extraposes first, we obtain the derivation in (50) and the word order in (44c).



We now have an account of why all three word orders in (44) are possible. It relies on three assumptions, all of which seem reasonable to us. First, that IPCs involve adjunction of PP to DP; this is a cornerstone of the solution to the first definiteness puzzle and a consequence of the general analysis of definiteness marking in Hankamer & Mikkelsen (2002, 2005). Second, that an additive particle may, but needn't, extrapose to the end of DP; something like this assumption seems necessary to explain the basic facts in (43). Third, that there are no restrictions on the order in which additive particles extrapose and PPs adjoin, which seems to us to be the null hypothesis. Since we propose that IPCs have the same syntactic structure as any noun phrase in which N takes a PP complement, we expect the latter to show the same distribution of additive particles. This is indeed the case, as (51) demonstrates. (As is the case with IPCs, the phrase-final position of *til* in (51b) is slightly less natural than the other two positions; see footnote 12 above.)

- (51) (a) en **til** ven af familien  
 one more friend of family-DEF  
 'one more friend of the family'

- (b) en ven af familien **til**  
 a friend of family-DEF more
- (c) en ven **til** af familien  
 a friend more of family-DEF

As for why *til* cannot occur in the intermediate position in DPCs, the answer can now be shown to follow from the analysis of the intermediate position proposed for IPCs in (50), together with the assumption made in section 5.2 that NPs never adjoin to DP. (50) shows that the intermediate position of *til* relies on the PP adjoining to DP after *til* extraposes. If the NP in a DPC never adjoins to DP, but always merges as the sister of N, there is no way to derive the intermediate position of *til*: *til* either occurs immediately after D, as in (47), or after N<sub>2</sub>, as in (48). These analytical options correspond precisely to the empirically observed pattern in (45).

## 6.2 *Prenominal definiteness marking and relative clauses*

Recall that IPCs and DPCs differ with respect to postnominal definiteness marking, but both can occur with the prenominal definite article in the context of a restrictive relative clause:<sup>14</sup>

[14] In the case of the DPC in (53) it seems accurate to say that the restrictive relative clause licenses a definite article per se, since without the restrictive relative clause, no definite article is possible, whether prenominal (see (11)) or postnominal (see (7)). As regards the IPC, a definite article is possible in the absence of a restrictive relative clause, but in that case it must be realized as a definite suffix (see (6) and (10)). What (52) and (53) show is that the presence of a restrictive relative clause licenses a prenominal definite article in both the DPC and the IPC in Danish. The goal of this section is to provide an account of this observation.

Licensing of a definite article by a restrictive relative clause is also found in various English DPs including the regular partitive construction: *the four of the boys* \*(that came to dinner) (Jackendoff 1977: 177ff.). Barker (1998) provides a semantic account of this effect, and an anonymous reviewer asks whether Barker's account might be extended to the Danish facts discussed in this section and to similar effects in English pseudopartitives with a sufficiently abstract N<sub>1</sub>: *The number of guests* \*(that came to dinner) could not be fed. While this might be possible, there are two obstacles that currently prevent us from offering such an analysis. First, Barker's account of the ungrammaticality of definite partitives like *the four of the boys* rests on the assumption that the lower nominal (here *the boys*) must denote an individual (here the group individual consisting of the contextually relevant boys) as opposed to a generalized quantifier or a set of individuals. (This is the Partitive Constraint of Ladusaw 1982.) It is not clear that the semantics of pseudopartitives is similar in this respect. The only formal semantic analysis of pseudopartitives that we know of, that proposed by Schwarzschild (2006), does not analyze the lower nominal as individual-denoting, but rather as a predicate over individuals (see his (131) on p. 105). Second, if the licensing of a definite article by a relative clause is semantic in nature, there must be some semantic difference between the DPC and the IPC, since only the former needs such licensing. We currently have no insights as to what that difference could be.

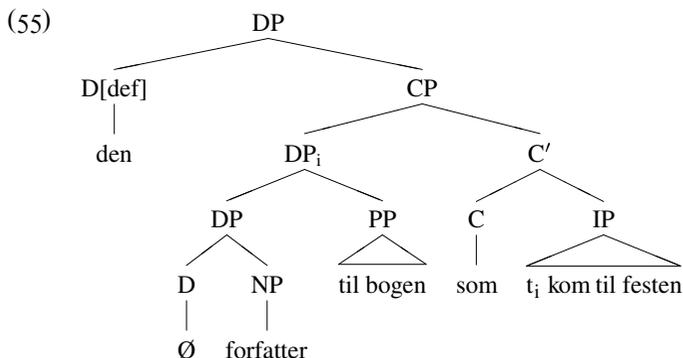
- (52) **den** gruppe af turister som netop ankom [IPC]  
 DEF group of tourists that just arrived  
 ‘the group of tourists that just arrived’
- (53) **den** gruppe turister som netop ankom [DPC]  
 DEF group tourists that just arrived  
 ‘the group of tourists that just arrived’

In DPs in general a restrictive relative clause licenses prenominal definiteness marking:

- (54) (a) forfatter**en** [til bogen]  
 author-DEF to book-DEF  
 ‘the author of the book’
- (b) \***den** forfatter [til bogen]  
 DEF author to book-DEF
- (c) **den** forfatter [til bogen] som kom til festen  
 DEF author to book-DEF who came to party-DEF  
 ‘the author of the book who came to the party’

So we need to show that the difference between the structures we have proposed for the IPC and the DPC does not affect the licensing of prenominal definiteness marking by a restrictive relative clause.

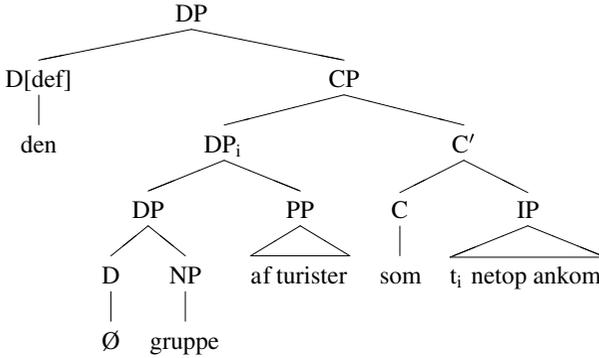
In Hankamer & Mikkelsen (2005: 113–116), following Bianchi (1999), we adopted a DP-raising analysis of Danish restrictive relative clauses, which we supported by language-internal evidence from reconstruction effects:



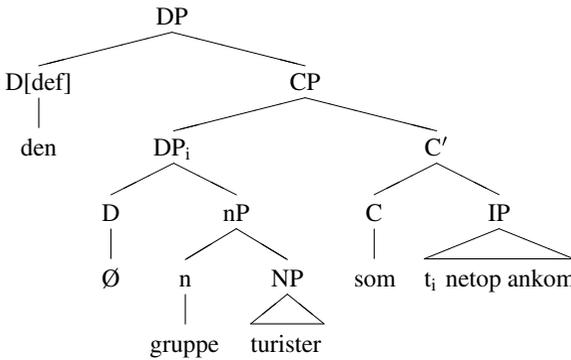
Since at spell-out D[def] is not a sister of N (D[def] is the sister of CP), we get prenominal definiteness marking, the elsewhere case (see section 3.1).

If we combine this relative clause analysis with the structures we have assumed for the IPC and the DPC, we get the following structures for (52) and (53):

(56) IPC



(57) DPC



Just as in the case of an ordinary DP, both pseudopartitive constructions have structures in which D[def] is not the sister of N, and hence the prenominal article is the only permitted realization of it. This is the solution to the third part of the definiteness puzzle. The possibility of prenominal definiteness marking in (52) and (53) has nothing to do with the structure of the DPC and the IPC, but everything to do with the derivation of restrictive relative clauses in Danish.<sup>15</sup>

[15] One might reasonably ask how this analysis accounts for number and gender agreement, since the determiner exhibiting agreement (*den*) is not in the canonical structural relationship with the noun that controls agreement: in particular, *gruppe* is not the head of *den*'s complement. However, as Bianchi (2000: 125–128) points out, the two are in a local enough configuration for an agreement relation to be established. The inner DP containing *gruppe* is in the specifier of CP and hence accessible to elements outside the CP, including the outer D.

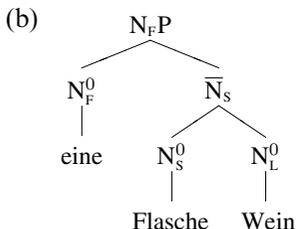
6.3 *Pseudopartitives and extended nominal projections*

Above we proposed that the Danish DPC forms a single extended nominal projection in which N<sub>2</sub> is the lexical head and N<sub>1</sub> and D are both functional heads (following Grimshaw 1991, 2005) we would assume that D has a higher F-value than N<sub>1</sub> since D occurs higher in the projection). In contrast, the Danish IPC contains two extended projections: one whose lexical head is N<sub>1</sub> and one whose lexical head is N<sub>2</sub>. The latter obligatorily contains a preposition (*af* or *med*) as its highest functional head. As regards the analysis of the IPC, we find ourselves in convergence with Grimshaw's (to appear) analysis of English IPCs like *a box of books*, *a bottle of water*, and *a plate of cookies*. Grimshaw argues that these necessarily involve two extended projections. Since English does not have a DPC, the question of whether it would involve one or two extended projections does not arise in Grimshaw's discussion. It does arise in van Riemsdijk's (1998: 13–18) discussion of Dutch and German DPCs, where he argues that these 'show the behavior of single projections rather than dual projections' (p. 13), citing evidence from semantic selection, case agreement, and the distribution of determiners between N<sub>1</sub> and N<sub>2</sub>. However, van Riemsdijk also suggests that Dutch and German DPCs cannot straightforwardly be analyzed as a single extended projection in Grimshaw's sense, because N<sub>1</sub> 'retains more of its independence than would be expected if it were a functional head' (p. 15). In particular, N<sub>1</sub> of a DPC can antecede relative clauses and determine adjective order independently of N<sub>2</sub>, and it forms a semi-open class (DPCs with novel N<sub>1</sub>s can be formed).<sup>16</sup> To accommodate these observations, van Riemsdijk proposes that a third kind of category be recognized alongside Grimshaw's lexical and functional categories, namely semi-lexical categories, and that the N<sub>1</sub> of a DPC is a semi-lexical head. A single projection may contain a semi-lexical head above a lexical head, but below any functional heads. Thus the German DPC in (58a) has the single projection structure in (58b), where the subscripts F, S, and L indicate functional, semi-lexical, and lexical categories, respectively (van Riemsdijk 1998: 39). For comparison, we include our structure for the corresponding Danish DPC in (59).

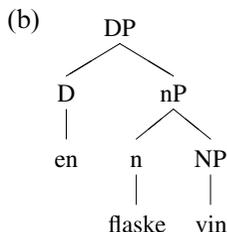
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[16] Van Riemsdijk acknowledges (p. 17) that some N<sub>1</sub>s might be fully functional heads, or lead a double life as either semi-lexical or functional heads. What is important for his debate with Grimshaw is that not all occurrences of all N<sub>1</sub>s in Dutch and German DPCs can be analyzed as functional heads in Grimshaw's sense.

(58) (a) eine Flasche Wein  
 a bottle wine  
 ‘a bottle of wine’



(59) (a) en flaske vin  
 a bottle wine  
 ‘a bottle of wine’



The existence of DPCs is one of van Riemsdijk’s (1998) main empirical arguments against Grimshaw’s (1991) theory of extended projections and in favor of his own notion of (M-)projections. Grimshaw (2005: 12, footnote 11) responds that she does not see the logic of this argument, and suggests that N1 and N2 of a DPC can ‘form part of a single extended projection provided that the measure noun [i.e. N1 – JH&LM] has an *F*-value greater than that of a regular noun’. In our view this is a reasonable response to van Riemsdijk’s (1998) criticism, but we nonetheless believe that Dutch and German DPCs, as well as the Danish DPCs studied above, present a serious challenge to Grimshaw’s theory. The problem lies not with accommodating two nominals in one extended projection, but with the fact that the two nominals may differ in number and gender, as shown in (60) and (61) (see also (29) above and examples (13a, b, e), (14a), (16a), (17a), (20a, b), (22a) in van Riemsdijk 1998):

(60) en flok fugle  
 a-SG flock-SG bird-PL  
 ‘a flock of birds’

(61) en spand vand  
 a-COM bucket-COM water-NEU  
 ‘a bucket of water’

Such number and gender mismatches pose a problem for analyzing the DPC as a single extended projection because of the consistency requirement that Grimshaw (2005) imposes on extended projections:

The extended projection analysis automatically requires ‘agreement’ between a functional head which is specified for number and the head of its complement. For *a* and *this/these/that/those*, assuming these to be F-heads, the features projected from D to DP will include number and the features projected from N to NP to DP will also include number. A consistency requirement will therefore automatically exclude cases where the D and N disagree in number, allowing only combinations where both have the same value for the feature, or at least one of the two is unspecified for the feature.

The functional head and the lexical head of the extended projection can never have contradictory values for projected features, because both sets of features are projected onto the same phrase. (Grimshaw 2005: 17f.)

Grimshaw's (2005) motivation for imposing the consistency requirement is that it allows for an elegant and simple analysis of semantic selection and agreement between extended nominal projections and (verbal) elements outside the projections. For instance, one does not need to assume that the English definite determiner *the* is ambiguous between a singular form and a plural form. On the other hand, if we analyze Danish DPCs as extended nominal projections, they are clearly in violation of the consistency requirement. This is a dilemma because the evidence presented in sections 4.1–4.3 points strongly to Danish DPCs' forming a single extended projection; if Grimshaw's theory isn't able to accommodate them as such, it is a weakness of the theory.

Van Riemsdijk's (1998) theory of (M-)projections does not have a problem with the number and gender mismatches, since no consistency requirement is assumed. On the other hand, the lack of such a consistency requirement leaves open how the English selection and agreement facts discussed by Grimshaw (2005) should be analyzed, as well as the more general question of when exactly elements of a single projection may disagree, and with respect to which features. Van Riemsdijk (1998: footnote 16) acknowledges the latter issue and suggests that what is needed is a theory of feature percolation, while leaving the development of such a theory to future research. We are not in a position to resolve this issue here either, but we would like to suggest that the notion of semi-lexical category could be useful in this regard. In particular, one could hypothesize that projection-internal mismatches are allowed if a semi-lexical head is involved, but not when an extended projection contains only a lexical head and one or more functional projections. One possible test case, pointed out to us by a reviewer, is the English a-kind-of-N construction, which appears to be a single extended projection and which allows number mismatches (see corpus data in Zamparelli 1998: 292). While this hypothesis obviously needs to be tested more thoroughly, it does reconcile Grimshaw's (2005) analysis of selection and agreement in English with van Riemsdijk's (1998) analysis of German and Dutch DPCs and our analysis of Danish DPCs.

#### 6.4 *DEF-n puzzle*

We have one remaining puzzle. While DPCs can occur with pronominal definiteness marking in the context of a restrictive relative clause, the string in (62), which lacks a restrictive relative clause, can only be interpreted as

a demonstrative phrase (this is part of what we called the second puzzling fact in section 2, cf. (II)):

(62) den        flok   fugle  
       DEM/\*DEF flock birds  
       ‘that flock of birds’

(63) \*flokk-en   fugle  
       flock-DEF birds

This is strongly reminiscent of another fact, namely that the simple D–N string (64) can also only be interpreted as a demonstrative:

(64) den        fugl  
       DEM/\*DEF bird  
       ‘that bird’

Hankamer & Mikkelsen (2002, 2005) propose that the lack of a definite interpretation of (64) is due to Poser-Blocking (i.e. blocking of a phrase by a lexical item, cf. Poser 1992) of D[def] N by (65):

(65) fugl-en  
       bird-DEF  
       ‘the bird’

However, we cannot appeal to Poser-Blocking in the case of (62), since the analogue to (65) is (63), which is ungrammatical. If only Poser-Blocking were at work, (62) should be good on the definite (non-demonstrative) interpretation.

One might be tempted to suggest that both (62) (on the definite, non-demonstrative reading) and (63) are ruled out because D[def] simply cannot take an nP complement (while D[dem] can). Such a restriction would explain the lack of a definite (non-demonstrative) reading for (62), as well as the ungrammaticality of (63). Crucially, it would not incorrectly rule out (66), since under our analysis of (66) the D[def] (= *den*) takes CP as its complement and the nP [*flok fugle*] is the complement of a null D. Note also that this is fully compatible with the assumption made in Hankamer & Mikkelsen (2005), as well as in Bianchi (1999), that the null D is not definite (if it were, it should not be able to combine with nP and hence there would be no derivation for (66)).

(66) den flok   fugle vi så   i går  
       DEF flock birds we saw yesterday  
       ‘the flock of birds we saw yesterday’

This approach will not do, however, because when *n* is modified by a pronominal adjective the definite interpretation is available:

(67) den        store flok   fugle  
       DEM/DEF big    flock birds  
       ‘the/that big flock of birds’

According to our assumptions, adjectives are adjoined to the complement of D[def] (NP or nP), and the presence of an adjective should not affect the selection of that complement by D.

It appears that what we must accept is that when a n is unmodified, it is incompatible with D[def]. Note that this does not mean that it is incompatible with definiteness per se, since the D[dem] is surely definite. Rather, it is incompatible with the sort of definiteness associated with the definite determiner used anaphorically (let us call this ‘anaphoric definiteness’), but not with the definiteness associated with a restrictive relative clause, or the definiteness associated with a demonstrative.

Consider, for example, a situation in which there are two flocks of things, a flock of birds and a flock of sheep, and the birds fly away. In a language like English it is perfectly normal to say (68):

(68) The flock of birds flew away.

But in Danish, under the same circumstances, the DPC does not permit the definite article:

(69) \*Flokk-en fugle fløj væk.

flock-DEF birds flew away

(70) \*Den flok fugle fløj væk.

DEF flock fugle flew away

The only things one can say involve a compound (71) or a non-partitive simple noun (72):

(71) Fugle-flokk-en fløj væk.

bird-flock-DEF flew away

(72) Fugle-ne fløj væk.

birds-DEF flew away

We assume that this difference between English and Danish results from the fact that English does not have a DPC (hence, *flock* in English is not a semi-lexical head), whereas in Danish a DPC does exist and *flok* is a semi-lexical head when it occurs in the DPC. It appears to be a semantic property of semi-lexical heads of this kind that they cannot participate, unless modified, in anaphoric definiteness relations.

## 7. CONCLUSION

While our focus has been on the morphosyntactic and prosodic properties of the DPC and the IPC, it is clear that there are also semantic issues that deserve investigation. First, the literature (cf. section 3.2) recognizes a range of subcategories of NI. We have ignored these subcategories here, since all NIs appear to behave alike with respect to the definiteness marking puzzle

that is the central concern of our paper. It seems likely, however, that a fuller understanding of pseudopartitives, especially their semantics, will require a fuller understanding of the different subcategories of N<sub>I</sub>s. We have also largely ignored the question whether there are restrictions on the determiner in the two constructions (though we touched on one specific such restriction in section 6.4 (the DEF-N PUZZLE)). Again we believe that the issue is bound up with the semantics of these constructions.

A second area in which further investigation is in order concerns the differences between Danish on the one hand and Swedish and Norwegian on the other. Whereas suffixal definiteness marking on N<sub>I</sub> is impossible in Danish DPCs, N<sub>I</sub> may bear the definite suffix in Swedish whether the suffix is the sole exponent of definiteness or expresses agreement with a prenominal definite article (Delsing 1993: 215). The latter is an example of so-called double definiteness marking, which arises when an attributive adjective is present (and in various other contexts). In Norwegian DPCs, N<sub>I</sub> can bear the definite suffix when participating in double definiteness, but not when the suffix is the sole exponent of definiteness, most notably when there is no adjective modifying N<sub>I</sub> (Kinn 2001: 147). These facts should presumably be related to the fact that Swedish and Norwegian permit double definiteness marking, while Danish does not.

What we believe we have shown is that in Danish, the DPC has a structure in which N<sub>I</sub> is not an ordinary N, but rather a functional or semi-lexical category (n) which takes an NP complement, whereas the IPC structure is just that of a nominal phrase, headed by an element of category N, which takes a PP complement. In conformity with earlier work (Hankamer & Mikkelsen 2005, Julien 2005), we assume that this PP occurs adjoined to DP, while the NP complement of n in the DPC never occurs in this position. These assumptions about the syntactic structures provide an explanation for the prosodic difference, the inflectional deficiency of N<sub>I</sub> in DPCs, almost all of the definiteness marking puzzles, and the distribution of additive particles. In brief, the DPC behaves like a single extended projection of N<sub>2</sub>, while the IPC does not.

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