Abstract

Despite their apparent simplicity, the structure of DPs containing “complement” CPs (what we will call DCs) has long been obscure. One major strand of investigation has attempted to assimilate DCs to (close) nominal apposition, implying that N and CP form a structural unit which then combines with D. Danish has two kinds of DCs, a bare DC with the superficial structure [D N CP] and a prepositional DC in which the CP is encased in a PP. Exploiting clues provided by the allomorphy of the definite morpheme, we argue that the bare and prepositional DCs have very different structures, neither of which can be assimilated to apposition between N and CP. We further show that the two kinds of DC have distinct semantic and pragmatic properties. We then argue that English also has two different structures for DCs, and that they are plausibly parallel to the structures we establish for Danish. We conclude by arguing that two distinct structures give rise to the “apposition” relation: in one case it is between co-arguments of D and in the other it is nonrestrictive composition.

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1 Introduction

We are concerned with the analysis of constructions like (1), where a DP is composed of a
determiner, an abstract noun, and a CP:

(1) the idea [that ginger aids digestion]

We will call such constructions DCs, remaining for the moment neutral about their internal
structure.

In early transformational grammar, it was generally assumed that the CP is a sis-
ter (thus a complement, in structural terms) of the N (Rosenbaum 1967:3–5; Chomsky
1970:195; Kiparsky and Kiparsky 1970:157; Stockwell et al. 1973:508 a.o.; see also Hud-
dleston and Pullum 2002:439). Since at least Stowell (1981), however, various objections
have been raised against this (let us call it traditional) analysis, and accordingly several
alternative analyses have been proposed. We will not review all of them here, but just to
give a sense of the variety, here are a few prominent ones.

Stowell (1981) suggests that the relation between the CP and the N is one of “appo-
sition” (though he does not say what structure that would entail). Grimshaw (1990:71,
73) says that Ns can never take CP “arguments”, by which she apparently means what we
mean by “complement”. Moulton (2015), while it is very difficult to discern what syntactic
structure he assumes, suggests (p. 313) that the CP and the noun compose by Intensional
Predicate Modification, which ought to mean that the CP is an adjunct (or an appositive).
Nichols (2003) proposes that the CP in a DC is a covert relative clause, an idea also pursued
and Kayne (2010:212-215). de Cuba (2017:3–28) provides convincing arguments against these covert relative clause analyses, but himself remains carefully agnostic about whether such CPs are adjuncts or complements (p. 40).

What seems to be driving all of these proposed alternatives to the standard analysis is a general sense that the semantic relation between the N and the CP is not that between a normal lexical head and its complement. There is no sense in which *idea* in (1) assigns a Θ-role to the CP (or to anything, for that matter). As Stowell (1981:200) points out, in a DC like (2) “*claim* refers to the thing which is claimed, rather than the act of claiming”.

(2) John’s claim that he would win

And indeed, the works cited present lots of evidence of various kinds that DCs behave differently in many ways from the corresponding verbal constructions. Stowell goes on to declare that “…the derived nominal heads actually refer to the same thing that their ‘complements’ do: the object argument of the verb. The relation between the derived nominal and its ‘complement’ is actually one of apposition, rather than of Θ-role assignment.”

This sentiment is repeated in slightly varying forms throughout the literature cited above. We will have more to say in section 3.1 about the difficulties confronting any attempt to put actual syntactic flesh on an appositive analysis. Stowell does not appear to have tried to do that.

In this paper we investigate the properties of two kinds of DCs in Danish. Because Danish has two DC constructions and useful morphosyntactic diagnostics that do not exist in English, this investigation sheds useful light on the relation between N and CP in a DC. The authors of the works cited above struggled to characterize the structure of DCs, especially the relation between the N and the CP. Our investigation leads to the conclusion that there are two structures for DCs and that X-theory of the standard kind provides the
appropriate structures. We don’t need anything particularly mysterious or fancy.¹

We will agree with all of these authors that in neither DC structure is the CP a complement of the N. We will in fact argue that in one structure the CP is a complement to the D, in the other the CP is adjoined to DP.

The first type of DC we consider involves an abstract head noun followed by a CP, parallel to the English example in (1):²

1. **(3)** den ide at ingefær gavner fordojels-en
   the idea that ginger aids digestion-DEF
   *the idea that ginger aids digestion*

Danish has another kind of DC, in which the N is not followed directly by a CP, but a preposition intervenes between the noun and the CP:

2. **(4)** en ide om at ingefær gavner fordojels-en
   a ide about that ginger aids digestion-DEF
   *an idea that ginger aids digestion*

3. **(5)** ide-en om at ingefær gavner fordojels-en
   ide-DEF about that ginger aids digestion-DEF
   *the idea that ginger aids digestion*

¹A reviewer expressed some curiosity about our “theoretical stance”. We have tried to keep our theoretical commitments as spare as possible, but we do of course have some. We are committed to the reality of phrase structure, to the existence of functional projections, and to the existence of head movement as a syntactic operation subject to the commonly assumed locality constraints. We are also committed to certain key assumptions of Distributed Morphology: that the atoms of syntax are bundles of features, and that phonological expression is via late insertion (at least for the functional part of the vocabulary). Finally we assume that heads select their arguments, which may be complements, specifiers, or in some cases adjuncts within the extended projection (in the sense of Grimshaw (1991, 2005)) of the head.

²We use the following abbreviations in the glosses: *DEF* = definite, *EXPL* = expletive, *PASS* = passive, *REFL* = reflexive.
The two kinds of DCs interact differently with definiteness marking. When $D=[\text{DEF}]$, the definite morpheme, the bare DC invariably uses the prenominal article, whereas the prepositional DC, as seen in (5), uses the suffixed form (unless the presence of an attributive adjective forces the prenominal article).\textsuperscript{3}

While perhaps puzzling from an English perspective, the existence and behavior of the prepositional DC is in fact entirely expected from the point of view of Danish syntax, as we show in section 2.4. It is the bare DC in (3) that is the real challenge, as we shall see in section 3. The main purpose of this paper is to develop an analysis of the bare DC that is compatible with the other aspects of Danish syntax and explains its characteristic properties. We first establish, in section 2, that the two DCs differ not

\textsuperscript{3}We have found very little discussion of DCs in the otherwise extensive literature on Scandinavian DP structure. Mikkelsen (1998:45–46, 90–98, 130–132) provides the results of a corpus study and an HPSG analysis; Hankamer and Mikkelsen (2018:70-72) discuss DCs briefly and adopt the traditional analysis of CP as a complement to N. We know of no articles devoted to their study nor are they discussed in Börjars (1998), Delsing (1993), and Julien (2005), three monographs on Scandinavian DP structure. In their descriptive grammar, Hansen and Heltoft (2011:1509–1512) briefly discuss the Danish constructions and their characterization of the data accords with ours, with two exceptions. First, Hansen and Heltoft characterize the use of the prepositional DC with the suffixed definite article as a strong tendency, where we consider it a grammatical requirement. Second, Hansen and Heltoft assume that some DCs of the form in (3) involve the demonstrative determiner *den*, and not the definite article *den*, whereas we believe that *den* in the bare DC is uniformly the definite article. We are not in a position to settle the matter empirically here, but our general approach is compatible with either outcome, since, under our analysis of the bare DC, participation in the bare DC is determined by selection on the part of individual determiners. Only determiners that select for a CP occur in the bare DC. Our current position is that the definite article is alone in selecting for a CP, but should it turn out that the demonstrative determiner occurs in the bare DC as well, our analysis could be modified to allow for that simply by changing the lexical specification of the demonstrative determiner. Finally we note that comparison of Danish to descriptions of Norwegian (Faarlund et al. 1997:272–274) and Swedish (Teleman et al. 1999:42, 95, 103, 121–8) suggests that DCs form another area of complex variation among the mainland Scandinavian languages.
only in morphosyntactic properties but also in (a) the head nouns they allow and (b) the
semantic/pragmatic status of the DC. We then present a syntactic analysis (section 3)
that resolves the difficulties and accounts for the clustering of morphological, syntactic,
and semantic properties of the two DCs. We then argue, in section 4, that the analysis
we are driven to by the requirements of Danish morphology and syntax leads to a way
of understanding the structure of DCs in general which we can extend quite naturally to
English, providing a more satisfactory account than any of those cited at the beginning of
this introduction.

2 Danish DCs

To repeat, Danish has two kinds of DCs:

(6) den ide at ingefær gavner fordøjels-en [bare DC]

the idea that ginger aids digestion

(7) ide-en om at ingefær gavner fordøjels-en [prepositional DC]

the idea that ginger aids digestion

The two kinds of DC are not in free variation. A striking difference is that the bare
DC is possible only with the definite article,\textsuperscript{4,5} indefinite, possessive, and demonstrative

\textsuperscript{4}There are several elements which we may regard as belonging to the category D in Danish and as being “definite” in some sense, including the possessive morpheme and the demonstratives, but there is one very special one which we will call D[DEF] and which may be regarded as purely marking definiteness and nothing else. D[DEF] has an interesting and well-studied allomorphy (see e.g. Delsing 1993, Embick and Noyer 2001:580-584, Julien 2005, Hankamer and Mikkelsen 2002, 2005, 2008, 2018), in which it sometimes surfaces as a free-standing article and sometimes as a suffix on the head noun of its associated NP. In our analysis of the bare DC (section 3), we will rely on the analysis of the allomorphy of D[DEF] developed in Hankamer and Mikkelsen (2005, 2008, 2018).

\textsuperscript{5}A reviewer asks whether this is a hard syntactic fact or whether the restriction to the definite article in bare DCs might follow from their semantics, in particular the idea that the CP “identifies” the content of the noun. To test this the reviewer suggests looking at cases where “the pragmatics offers a way to individuate different Ns with the same propositional content,” and offers the English equivalents of (8) and (9):

\begin{quote}
(8) Jeg hørte to rygter *(om) at du har tænkt dig at sige op.
I heard two rumors about that you have thought REFL to say up
\end{quote}

\begin{quote}
(9) Din skøre ide *(om) at CPer er udsagnsord . . .
your crazy idea about that CPs are predicates
\end{quote}

Both are impossible with the bare DC, reinforcing our claim that the restriction on D in the bare DC is a hard syntactic fact.
determiners require the prepositional DC, as (10) shows.\(^6\)

\[(10)\] en/hans/denne ide *(om) at ingefær gavner forðøjels-en
   a/his/this idea about that ginger aids digestion-DEF

We take this to be a case of category-selection: D[def] may select a CP (or an NP), whereas all other Ds select only NP.\(^7\) Further evidence for there being a selectional relationship between D and CP in the bare DC comes from the contrast between (6) and (11):

\(^6\)Strings like the ungrammatical ones in (10) do occur, as shown in the grammatical examples below.

i. Det var [DP hans ide] [CP at vi skulle putte ingefær i suppen].
   it was his idea that we should put ginger in soup.DEF
   *It was his idea that we should put ginger in the soup.

ii. Det er [DP en kendsgerning] [CP at ingefær gavner forðøjels-en].
   it is a fact that ginger aids digestion.DEF
   *It is a fact that ginger aids digestion.

But here the CP does not form a constituent with the preceding DP. Rather these are extraposition structures, just like their English counterparts, and do not involve DCs. Consequently, the grammaticality of (i) and (ii) does not bear on our claim that bare DCs allow only the definite article.

\(^7\)A reveiwer pointed out that the standard evidence that X selects Y is that X will combine with Y but not with Z or W, but here we are saying that X selects Y because X combines with Y while P and Q do not combine with Y. We acknowledge that the usual argument for a selection relation is based on showing what the selecting head will not combine with, but we do not believe that the argument here is fundamentally different. We are contrasting the ability of D[def] to cooccur with a CP with the inability of other D heads to do the same. When we say, for instance, that T selects vP we are not only saying that T can combine with vP (and by implicature, not with certain other things), but also implying that there are other heads that cannot combine with vP. Selection is a mechanism for saying what phrases can cooccur with what heads.
The bare DC allows declarative CPs (6), but not interrogative ones (11). In contrast, the prepositional DC allows both declarative (7) and interrogative (12) CPs.

(12) a. spørgsmål-et om hvorvidt ingefær gavner fordøjelsen.
question-DEF about whether ginger aids digestion
the question whether ginger aids digestion

b. spørgsmål-et om hvem vi skal give nøglen til
question-DEF about who we shall give key-DEF to
the question who we should give the key to

So not only is D[DEF] unique in selecting for a CP, it specifically selects for a declarative CP.

In addition, the form taken by D[DEF] in a bare DC is invariably the free-standing article, never the suffixed form:

(13) *ide-en at ingefær gavner fordøjels-en
idea-DEF that ginger aids digestion-DEF

On the other hand, a prepositional DC can be headed by D[DEF] but (unless there is an adjective present, as in (48) in section 3.2) the form of the D must be suffixed.  

* (15) is grammatical if den is stressed, but then den is unambiguously a demonstrative D, not a definite article.
(14) ide-en om at ingefær gavner fordøjels-en
    idea-DEF about that ginger aids digestion-DEF
    the idea that ginger aids digestion

(15) *den ide om at ingefær gavner fordøjels-en
    def idea about that ginger aids digestion-DEF

These facts can be summarized as follows:

a. The bare DC must be headed by the definite determiner D[def].

b. The form of D[def] in the bare DC is always the free-standing article.

c. The propositional DC can be headed by any D, including D[def].

d. The form of D[def] in the prepositional DC, in the absence of an intervening adjective, is suffixal.

2.1 On the meaning and distribution of definite DCs

In addition to the morpho-syntactic differences between the bare DC and the prepositional DC examined above, the two constructions also differ in their use. In particular, definite prepositional DCs have a different distribution from definite bare DCs. First, a bare DC, but not the corresponding definite prepositional DC, can occur as the pivot of an existential construction:

(16) Der blev fremført [den pæstand at EU er på vej mod opløsning].
    expl became put.forth the claim that EU is on way towards dissolution.
    The claim was made that EU is on the path towards dissolution.
    Lit: There was made the claim that . . .

(17) *Der blev fremført [pæstand-en om at EU er på vej mod opløsning].
    expl became put.forth claim-DEF about that EU is on way towards dissolution.
Secondly, a bare DC, but not a definite prepositional DC, can occur as a the object of a performative verb:

(18) Jeg vover den påstand at EU er på vej mod opløsning.
    I dare the claim that EU is on way towards dissolution.
    I (hereby) make the claim that EU is on the path towards dissolution.

(19) *Jeg vover påstand-en om at EU er på vej mod opløsning.
    I dare claim-DEF about that EU is on way towards dissolution.

More generally, verbs of creation take bare DC complements (20), whereas prepositional DCs occur as complements of verbs that presuppose the existence of their complements (21). (We’ll rely on this diagnostic in the discussion of English DCs in section 4.)

(20) Vi lavede den aftale at alle rydder op efter sig selv.
    we made the agreement that everyone cleans up after refl self
    We made the agreement that everyone cleans up after themselves.

(21) Vi overholdt aftal-en om at alle rydder op efter sig selv.
    we kept agreement-DEF about that everyone cleans up after refl self
    We kept the agreement that everyone cleans up after themselves.

Thirdly, only the prepositional DC can be used with a linguistic antecedent. Consider the example in (22); for simplicity the discourse containing the antecedent is given only in English.

(22) Politicians have two standard reactions to criticism. The first is to claim that one doesn’t understand the situation. The other is to claim that the criticism is not valid.

In this case the claim that one doesn’t understand the situation comes from Simon Emil Ammitzbøll.

b. #Den påstånd at man ikke forstår situationen kommer i dette tilfælde fra Simon Emil Ammitzbøll.

In this context the prepositional DC in (22a) is anaphoric to the mention of the claim in the previous linguistic context. The bare DC in (22b) is infelicitous in this context, indicating that bare DCs cannot be anaphoric.

The same contrast can be observed using an opinion poll scenario. The opinion poll consists of a number of different claims and for each of these claims the participant has to declare whether they agree or disagree. A news caster reporting on the results of the survey can do so using a definite prepositional DC (23a), but cannot do so using a bare DC (23b)

(23) Reporting on an opinion poll:

a. På påstånd-en om at Brexit er værre for Storbrittanien end for EU erklærer 62% sig enige og 27% sig uenige.

As for the claim that Brexit is worse for Great Britain than for the EU, 62% agree and 27% disagree.
b. *På den påstand at Brexit er værre for Storbrittanien end for EU erklærer
on the claim that Brexit is worse for Great.Britain than for EU declare
62% sig enige og 27% sig uenige.
62% refl in.agreement and 27% refl in.disagreement

We propose that these differences indicate a difference in the kind of definiteness expressed by these constructions. In the terms of Schwarz (2009), bare DCs are weak-article definites whereas definite prepositional DCs are strong-article definites. A weak-article definite is licensed by uniqueness of its referent, whereas a strong-article definite also requires an antecedent. In the case of DCs, uniqueness is established by the CP complement which uniquely identifies the claim or rumor in question. Bare DCs are possible in existentials (see (16)) because all the existential requires is that the pivot be Hearer-New (Ward and Birner, 1995) and there is no incompatibility between being unique and being Hearer-New. Prepositional DCs, on the other hand, are strong-article definites and require an antecedent. This makes prepositional DCs infelicitous as the pivot of an existential (see (17)) since the existence of an antecedent implies that the prepositional DC is Discourse-Old and therefore also Hearer-Old because Hearers are assumed to remember what has been stated in the discourse.

The contrast in performative contexts ((18) vs. (19)) likewise follows from the different definiteness properties of the two DCs. The bare DC is compatible with a performative context because it is not anaphoric. The prepositional DC is incompatible with a performative context precisely because it is anaphoric. Finally, the contrast between the two DCs in anaphoric contexts suggests that there is competition between the two forms. The

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9Schwarz’s (2009) distinction between weak-article and strong-article definiteness is inspired by Hawkins’s (1978:130–149) distinction between referent-establishing definites (weak-article definites) and anaphoric definites (strong-article definites). While not exactly the same distinction, it is close enough for present purposes that we will use both sets of terms interchangeably here.
prepositional DC is felicitous in (22a) and (23a) because the context provides a linguistic antecedent. We propose that the infelicity of the bare DC in this context is a pragmatic effect due to Heim’s (1991) Maximize Presuppositions! principle: A prepositional DC carries stronger presuppositions (uniqueness and anaphoricity) and than the corresponding bare DC (uniqueness only). In a context where both presuppositions of the prepositional DC are met, it is infelicitous to use the bare DC, because it is presuppositionally weaker.\textsuperscript{10,11}

Having established the interaction between DCs and definiteness, we now turn to another semantic difference between the two DCs, namely in the range of nouns allowed in each construction.

### 2.2 Semantic restrictions on N

The bare and prepositional DC differ in which nouns may occur in the construction. More precisely, the bare DC allows a wider range of nouns than the prepositional DC. To draw the relevant generalizations we first need to put some terminology in place. We will use the term PROPOSITIONAL NOUN for a noun that, in some intuitive sense, labels a proposition.\textsuperscript{12}

\textsuperscript{10}Amy Rose Deal (personal communication, 2/5/2019) questions whether the bare DC is actually definite given its ability to occur in an existential construction (see 16). Here we follow Ward and Birner’s (1995) argument that the pivot of an existential may be definite, as long as it is Hearer-New (in the sense of Prince (1992)). One of Ward and Birner’s prime examples of Hearer-New definites in existentials is in fact DCs. See also Jónsson (2000) for relevant discussion of this issue in Icelandic. We thank Amy Rose Deal for pointing out the role on Maximize Presupposition! in the distribution of the two definite DCs.

\textsuperscript{11}Schwarz (2009) does not analyze DCs, but does observe (p. 70) that German DCs, which take the form D N CP, allow either the weak or the strong definite article. He further notes that it is “possible . . . that . . . there are differences in use conditions for the two forms” though he does not explore these possible differences.

\textsuperscript{12}We have not been able to locate much discussion of these nouns in the formal semantics literature. Some of them are discussed, under a variety of labels, in the work of Asher (1993), Moltmann (2003a, 2003b), Moulton (2015), and Pryor (2007).
Such nouns are characterized by being able to occur in the copula construction in (24):

(24) The/my N is CP.

a. The fact is that everyone participated.

b. My hope is that everyone participates.

Among propositional nouns, we distinguish three types:


15

The first two types are united in being representational, whereas the third type is non-representational. These distinctions are summarized in the taxonomy in (28):

(28) propositional
    propositional
    representational non-representational
    attitude speech act

With this terminology in place we can make the observation that the bare DC is possible with all three types of propositional nouns (29), whereas the prepositional DC is possible only with representational nouns (30).

(29) a. det høb at alle deltager [attitude N]
    the hope that everyone participates

    b. det krav at alle deltager [speech act N]
    the demand that everyone participates

    c. den kendsgerning at alle deltager [non-representational N]
    the fact that everyone participates

The one exception to this generalization is the speech act noun spørgsmål ‘question’, which cannot occur in the bare DC. See section 2 for relevant discussion.
The contrast between (29) and (30) suggests that the semantic relation between N and CP is different in the two DCs. Mikkelsen (2014), building on Pryor (2007) and Davies and Dubinsky (2003:12–14), suggests that in the bare DC the N has a sortal interpretation and simply characterizes the CP, whereas in the prepositional DC, the N has a relational interpretation, in which the noun designates an attitude towards, or a linguistic representation of, the state-of-affairs expressed by the CP. We will adopt Mikkelsen’s semantic characterization here, and propose syntactic structures for the bare and prepositional DC that support it.\footnote{We are not at present in a position to offer compositional semantic interpretations of the two structures, and we hereby extend an invitation to more semantically inclined colleagues to do so. What we are confident about is that the semantic composition has to be compatible with the structural differences we posit.}

Putting this together with the observations in the previous section, we can conclude that the prepositional DC is restricted to Representational nouns and occurs with strong-article definiteness. The Bare DC allows the full set of propositional nouns and occurs with
weak-article definiteness.\textsuperscript{15}

This concludes our examination of Danish DC constructions. Before we present our analysis of each of them, we need to lay out the basic facts about definiteness marking in Danish.

2.3 Danish definiteness markers

As noted above, Danish has two ways of marking definiteness: a suffix on the head noun and a prenominal article. The two are in complementary distribution and both show gender (neuter vs. common) and number (singular vs. plural) distinctions. Here we use the singular common gender forms -en and den for illustration, but the pattern is the same with neuters and plurals.

\textsuperscript{15}As noted by a reviewer, there is also some kind of selection between the N and the CP in a bare DC construction, because while some such Ns permit either a finite or a non-finite CP, there are several which permit a finite CP but not a non-finite one. The ones that do not permit a nonfinite CP are: antagelse ‘assumption’, bekymring ‘worry’, forrestilling ‘notion’, formodning ‘presumption’, mistanke ‘suspicion’, opfattelse ‘understanding’, overbevisning ‘conviction’, tro ‘belief’, viden ‘knowledge’, vished ‘certainty’, antydnings ‘suggestion’, argument ‘argument’, bekæftelse ‘confirmation’, besked ‘message’, betingelse ‘condition’, debat ‘debate’, erklæring ‘declaration’, diskussion ‘discussion’, forklaring ‘explanation’, forsikring ‘assurance’, forudsigelse ‘prediction’, garantie ‘guarantee’, historie ‘story’, hypotese ‘hypothesis’, indrømmelse ‘admission’, indvending ‘objection’, opfordring ‘suggestion’, klage ‘complaint’, krav ‘demand’, lov ‘law’, løj ‘lie’, meddelelse ‘notice’, påstand ‘claim’, rygte ‘rumor’, undskyldning ‘excuse’, erstatning ‘compensation’, forhold ‘state of affairs’, kendsgerning ‘fact’, konsekvens ‘consequence’, problem ‘problem’, and virkning ‘effect’. The semantic commonality in this class is that these are Ns that unambiguously denote propositions, while the Ns that permit nonfinite CPs (e.g. ambition ‘ambition’, frygt ‘fear’, and fantasi ‘fantasy’) also have the possibility of denoting an action or state of affairs in the world. However the semantics of apposition is cashed out, we assume it will guarantee semantic compatibility between the N and the CP. Because non-finite CPs do not denote basic propositions (Bhatt, 1999), they are going to be semantically incompatible with an N that can only denote propositions.
First, simple definite DPs with no complements or adjuncts require the definite suffix:

(31)  film-en  
      film-DEF  
      the film

(32)  *den film  
      DEF film

In contrast, DPs with a prenominal adjective require the definite article:

(33)  *nye film-en  
      new film-DEF

(34)  den nye film  
      DEF new film  
      the new film

Postnominal PPs license the definite suffix (35), but occur with the definite article if the article is required by another element, such as a prenominal adjective (36).

(35)  a.  film-en fra Belgien  
      film-DEF from Belgium

  b.  *den film fra Belgien  
      DEF film from Belgium

(36)  a.  *nye film-en fra Belgien  
      new film-DEF from Belgium

  b.  den nye film fra Belgien  
      the new film from Belgium
Hankamer and Mikkelsen (2005, 2008, 2018) analyse this pattern as in (37):\footnote{As discussed in LaCara (2019), this analysis is not, strictly speaking, compatible with the core DM assumptions that word building and categorization happens in the syntax. Under those assumptions there is no such thing as a minimal N. Instead there is a (minimal) root which serves as the complement of an n categorizing head. To allow for number contrasts there is a further Num projection above nP and NumP is the smallest projection that can serve as a complement to D. LaCara (2019) shows that the sisterhood condition on the insertion of the definite suffix in (37a) can be recast as a requirement of immediate asymmetric c-command between D[DEF] and Num^{min}. The spirit of the two formulations is the same: the suffix is only inserted when D[DEF] is the sister to a syntactic object that is spelled out as a single word. For ease of presentation, we use Hankamer & Mikkelsen’s minimal N formulation here as a shorthand for the more articulated NumP analysis in LaCara (2019). For other, similarly articulated, DP analyses, see e.g. Julien (2005) and Alexiadou et al. (2007).}

\begin{equation}
(37) \quad \begin{align*}
\text{a.} & \quad -en \text{ is found when } D[\text{DEF}] \text{ is sister of a minimal NP (i.e. NP consisting solely of N)} \\
\text{b.} & \quad \text{den is found elsewhere}
\end{align*}
\end{equation}

In simple DPs, D[DEF] is a sister to a minimal NP, so the definite suffix is used (38). In DPs with adjectival modification, the NP sister of D[DEF] is not minimal—it contains an AP—and thus the definite article is used (39).

\begin{equation}
(38) \quad \text{DP} \quad \text{D} \quad \text{NP} \quad -en \quad \text{film}
\end{equation}

\begin{equation}
(39) \quad \text{DP} \quad \text{D} \quad \text{NP} \quad \text{den} \quad \text{AP} \quad \text{NP} \quad \text{belgiske} \quad \text{film}
\end{equation}
As illustrated in (40), we assume that PPs adjoin to DP (Hankamer and Mikkelsen 2005:111-113, 118; 2008:326–327, 2018:65–66, 73, Julien 2005:67–69). This leaves NP as a minimal sister to D[DEF], resulting in D[DEF] being spelled out as the definite suffix in (35)/(40):

(40)

\[
(40) \quad \begin{array}{c}
\text{DP} \\
\text{PP} \\
\text{NP} \\
\text{NP} \\
\text{en} \\
\text{film} \\
\text{fra} \\
\text{Belgien}
\end{array}
\]

If an AP is added, as in (36), the NP is no longer minimal and the definite article must be used:

(41)

\[
(41) \quad \begin{array}{c}
\text{DP} \\
\text{PP} \\
\text{NP} \\
\text{NP} \\
\text{en} \\
\text{film} \\
\text{fra} \\
\text{Belgien}
\end{array}
\]

In the next section we extend this line of analysis to the prepositional DC.

2.4 The structure of prepositional DCs

Whereas the complement of English prepositions is restricted to DPs or PPs (Emonds 1970:100, Stowell 1981:149, Grimshaw 1990:78, Legate 2010:122-125), Danish prepositions may additionally take CP complements. The examples below show this for the prepositions af (of), med (with), på (on) and om (about).
Everyone is sorry that she was fired.

We expect that they are coming next week.

I believe that my songs build courage in people.

They all agree that he needs to move.

The examples above all involve the schematic structure in (46), where the predicate (A or V) takes a PP complement, whose head in turn takes a CP complement.

Putting this together with the assumption from the previous section that PPs adjoin to DP in nominal structures, we arrive at the structure in (47) for prepositional DCs.

---

17Most nouns occur with the preposition *om* in the prepositional DC, but a small set of nouns select for different prepositions, as in *risiko for at* ‘risk for that’, *tro på at* ‘belief in that’, *initiativ til at* ‘initiative to that’. See Mikkelsen (1998:130–132) for illustrative data and Merchant (2018) for recent discussion of lexical selection of prepositions. Under the high adjunction analysis of PPs this is a case of extended selection: the extended projection of N, namely DP, selects for PP.
This structure places no special restrictions on D, which meshes with the observation that not just definite D, but also indefinite, possessive and demonstrative Ds are possible in the prepositional DC (see (10)). Furthermore, D is a sister to a minimal N, and thus realized as a suffix on N when definite.

In general the addition of an attributive adjective to a definite DP triggers prenominal definiteness marking, since the AP adjoins to NP, making it impossible for the definite D to be a sister to a minimal N as required for suffixal definiteness marking. We thus expect a shift to prenominal definiteness marking in the prepositional DC if an attributive adjective is included. This is correct, as shown in (48), where the adjective faste ‘regular’ is added to the prepositional DC in (59). As (48a) shows, suffixal definiteness marking is now impossible; instead definiteness is marked by the prenominal article, as in (48b).

(48) a. *faste aftal-en med lægen om at han fornyer recepten hver
regular agreement-DEF with doctor.DEF about that he renews prescription each
måned
month

b. den faste aftale med lægen om at han fornyer recepten hver
DEF regular agreement with doctor.DEF about that he renews prescription each
måned
month
‘the regular agreement that he renews the prescription

As expected, this effect on definiteness marking holds whether or not the the PP med
lægen ‘with the doctor’ is present, and it does not affect the anaphoric semantics associated with the prepositional DC. This latter observation is important in that it demonstrates that it is not the choice of definiteness marking (suffixal vs. prenominal) that conditions strong-article vs. weak-article interpretation. If it were, (48b) should be a weak-article definite, contrary to fact. Rather, the semantic difference is linked to the underlying configuration of D NP and CP. In some circumstances (e.g. if no attributive adjectives are present), that underlying difference results in different realizations of definiteness marking, but it need not, as (48b) shows.

This concludes our analysis of the prepositional DC and we turn now to the more mysterious bare DC.

3 The structure of the bare DC

An example of the bare DC construction is repeated in (49):

(49) den ide at ingefaer gavner fordøjels-en

the idea that ginger aids digestion-DEF

the idea that ginger aids digestion

In this construction there are three pieces (D, NP, and CP) and three things that need to be accounted for:

a. The order is D NP CP.

b. Definiteness is realized as an independent article, not as a suffix.

c. There is selection between D and CP and between D and NP.

Evidence for selection between D and CP comes from the fact that only D[DEF] occurs in the bare DC (see section 2). Evidence that D also selects NP comes from the pattern in
NP can only be present if D is present, as shown by the ungrammaticality of (50b). That is, D selects NP.

In section 3.1 we consider some candidate analyses for (49) and show that they won’t work; in particular they all have trouble accounting for the selection between D and CP. In section 3.2 we develop an analysis; in section 3.3 we show how this analysis accounts for the characteristic properties of bare DCs, including selection of CP by D and prenominal definiteness marking; and in section 3.4, we extend the analysis to Danish DCs that have no N. In section 3.5 we discuss the distribution of the extra functional layer we posit in the bare DC, and, finally, in section 3.6 we briefly discuss other constructions that plausibly involve a shell-structure and head raising.

3.1 Some analyses that don’t work

Perhaps the most obvious analysis to consider is the one we characterized in the introduction as the “traditional” analysis, where the CP is a complement to N, as in (51).
This will get the pieces in the right order (a), and will make the right predictions about definiteness marking (b), but would leave the selection of CP by D[DEF] (c) mysterious.

For similar reasons, an analysis in which the CP is adjoined to NP can be rejected:

Again, while the order is derived straightforwardly, and the expected definiteness marking would be the prenominal article, as observed, again it would be mysterious that the D[DEF] selects the CP.

Obviously, any analysis that involves first combining D and NP to form a DP, which then combines (perhaps by apposition) with the CP, as in

will fail to get the definiteness marking right, in addition to leaving it mysterious how the D[DEF] can select CP.\(^\text{18}\)

\(^\text{18}\)Yet another approach would be to propose a ternary-branching structure, in which D takes an NP
Let us consider how these syntactic analyses relate to the proposals in the literature about DCs. One major strand, represented by Stowell (1981), Grimshaw (1990), Moulton (2015), and de Cuba (2017), agrees in rejecting the traditional analysis (51) where the CP is a complement to N, and suggests (to varying degrees of explicitness) something like (52) or (53). Consider Stowell (1981:200):

Thus the derived nominal heads actually refer to the same thing as their “complements” do: the object argument of the verb. The relation between the derived nominal and its “complement” is actually one of apposition, rather than of Θ-role assignment.

Stowell does not provide any structural representation, so we have to guess what he had in mind when he said the relation between the N and the CP is one of “apposition”. He is clearly rejecting a structure like (51), so we assume he must have in mind something like (52). As we have seen, a structure like (52) cannot be maintained for Danish bare DCs, because there is no way to account for the selection we observe between D and the CP.

English does not appear to exhibit this selection. In section 4, however, we will argue that a closer inspection of the behavior of English DCs reveals that the same sort of selection obtains in English too, though it is not so clearly illuminated by the morphosyntax.

Stowell, of course, does not make a distinction between English constructions corresponding to Danish bare DCs and English constructions corresponding to Danish prepositional DCs, but the examples he cites (p. 199) in connection with his discussion (Andrea’s guess that Bill was lying, John’s claim that he would win, Paul’s explanation that he was temporarily insane) look like they would correspond to the prepositional DCs, in that they feature a possessive D. Later authors (e.g. Moulton 2015, de Cuba 2017) say very similar things about examples that appear to correspond to Danish bare DCs.
de Cuba (2017) follows Stowell in failing to be very explicit about the structure of DCs while repeating the assertion that the noun and the CP co-refer. Moulton (2015) does not assume that the N and the CP co-refer, but does assume that they denote the same kind of thing, and combine by Intensional Predicate Modification.\textsuperscript{20} This intuition (which we believe is mistaken) seems to have led these authors to the conclusion that the N and the CP in a DC combine first (though not in the same way as a head and its complement usually combine) and then this unit combines with the D. Returning to Danish, we have seen that this structural assumption gives wrong results for both bare and prepositional DCs. It cannot be the structure for prepositional DCs because it would get the definiteness marking wrong. It cannot be the structure for bare DCs because there would be no way for D to select the CP.

3.2 A head raising analysis

In the nearly workable analyses that we have rejected, the difficulty is the double selection: the D[\textsc{def}] clearly selects the CP, since no other D permits a CP; at the same time D also selects for NP (see (50)). Another place where such a problem appears is in the case of ditransitive verbs:

(54) I showed Harvey the photos.

Note that here too there is apparent double selection by a head (the ditransitive V) with both selected elements following the head, as it if had two complements. A commonly accepted solution (following Larson (1988); see Harley and Miyagawa (2017) and references\textsuperscript{20}Moulton (2015:311-313) offers an empirical argument for the noun and the CP having the same semantic type that is based on copular clauses. However, as far as we can tell, the argument is based on an equivocation of equative and specificational copula clauses and therefore does not go through. Thanks to John MacFarlane, Keir Moulton, and Ethan Nowak for helpful discussion of this issue.
cited there) is to posit a little v shell containing the VP structure, in which one of the DP arguments is a complement to V and the other a specifier:

(55)  

\[ \begin{array}{c}
& vP \\
& v \\
& VP \\
& DP \\
& \text{V} \\
& \text{DP} \\
\end{array} \]

The order V-DP-DP is then derived by an assumed Head-Raising of V to v.

Taking inspiration from this, and from later work by Larson (Larson 1991 and Larson 2014:407-480), we suggest a parallel analysis for bare DCs, with an underlying structure in which D[DEF] takes a CP complement directly and an NP specifier.\footnote{Larson’s theory of DP shell structure is much more comprehensive—and more radical—than what we are proposing here. Another related proposal is that of Roehrs (2009), who argues that that articles are base-generated as the head of a article Phrase and move into a higher D head. We leave for the future a fuller investigation of how our proposal here meshes with Roehrs’ Art-to-D movement analysis and with Larson’s (2014) theory of shell structure.}\footnote{A reviewer asks whether there are other cases of a nominal functional head taking two arguments. The (since Abney 1987) widely accepted analysis of the possessive morpheme in English as a D taking an NP complement and a DP specifier instantiates such a case.} Moreover, we propose to encode the fact that bare DCs are exclusively weak-article definites with a feature w on the selecting D head. We notate this D_w below.

(56)  

\[ \begin{array}{c}
& D_wP \\
& NP \\
& \text{D}_w' \\
& \text{D}_w \\
& \text{CP} \\
\end{array} \]

In such a structure it is not at all mysterious why D_w can select for a CP complement, and also an NP specifier. This structure is then assumed to be a complement to a functional
head (call it d), to which $D_w$ raises by Head Movement:\(^{23,24}\)

\[(57)\]

$$\begin{array}{c}
\text{dP} \\
\downarrow \\
\text{d} \\
\downarrow \\
\text{NP} \\
\downarrow \\
D_w \text{P} \\
\downarrow \\
\text{D}_w \text{'w} \\
\downarrow \\
\text{D}_w \text{CP} \\
\Rightarrow \\
\text{dP} \\
\downarrow \\
\text{d} \\
\downarrow \\
\text{NP} \\
\downarrow \\
D_w \text{P} \\
\downarrow \\
\text{D}_w \text{'w} \\
\downarrow \\
t \text{CP}
\end{array}$$

In section 3.3 we discuss how the head-raising analysis accounts for the morphosyntactic, semantic, and pragmatic properties of the bare DC. In 3.4, we provide further support for the head-raising analysis of the Danish bare DC from two related DC constructions and in section 3.5, we discuss the status of the d head and its distribution in the language. Finally, we consider other constructions that plausibly instantiate similar head raising configurations, before turning to English DCs in section 4.

\(^{23}\)Given the structure proposed, one might ask whether we can find arguments supporting the proposed c-command relations, like those in Barss and Lasnik (1986), which support the V-shell structure. Unfortunately, we cannot at present. The Barss-Lasnik diagnostics all involved relations between DPs, and we don’t have a similarly broad variety of diagnostics for relations between NPs and CPs.

\(^{24}\)This proposal may remind readers of a family of analyses of relative clauses, going back to Stockwell et al. (1973) and revived by Vergnaud (1974, 1985), Kayne (1994), and Bianchi (1999), in which a relative clause originates as a complement of D. In those analyses, though, it is a nominal element (NP or DP) that raises out of the embedded clause to become the superficial ”head” of the nominal structure. An assimilation of our proposal to those analyses would be misleading, because the movement operations assumed are quite dissimilar (ours involving head movement and the relative clause analyses involving phrasal movement) and the justification for the proposal is very different. So far as we are aware, the ”head” raising analysis of relative clauses do not rely for support on any selection relation holding between the D and the CP that is its supposed complement.
3.3 Accounting for the properties of the bare DC

3.3.1 Basic morphosyntactic properties

First, the order D NP CP is accounted for (a bit less straightforwardly than in the rejected analyses (CP complement of N, CP right-adjoined to NP or to DP)) by the raising of D to a higher head position, where it ends up to the left of its specifier as well as its complement.

The realization of $D_w$ as the prenominal article is predicted under this analysis because the D and N are never in direct construction with each other, and thus D is never a sister of a minimal NP. Consider the vocabulary items in (58), which are adapted from Hankamer and Mikkelsen (2005:(35)).

(58) a. -en $\leftrightarrow$ [D, def] if sister to a minimal N
    b. den $\leftrightarrow$ [D, def]

To ensure that $den$ is inserted for $D_w$ in (57) we make the further assumption that the Danish vocabulary does not contain a more highly specified version of (58b) that also contains the $w$ feature.

Thirdly, the selection relations are accounted for. $D_w$ can select a CP complement (unlike any other D) and an NP specifier. Note that this gives us a principled account of the word order that the ternary-branching structure mentioned in footnote 18 lacks. These considerations in fact count as an additional argument against any analysis that involves combining D+NP first.

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25 Hankamer and Mikkelsen’s vocabulary items are more complicated because they encode gender and number and the morphological gaps in the distribution of the definite suffix that they document. Since these factors are not relevant here, we omit those parts of the vocabulary items in (58).
3.3.2 Semantic and pragmatic properties

Turning to the meaning side, there are two contrasts between prepositional and bare DCs to consider. The first is the fact that the bare DC allows all propositional Ns, whereas the prepositional DC allows only representational Ns (see section 2.2); the second is that bare DCs involve weak-article definiteness, whereas the prepositional DC involves strong-article definiteness (or no definiteness at all).

We propose, following Mikkelsen (2014), that the prepositional DC is only compatible with representational nouns because the preposition forces a relational interpretation, in which the noun designates an attitude towards, or a linguistic representation of, the state-of-affairs expressed by the CP. Only representational nouns allow for such relational interpretation. The bare DC, on the other hand, has a direct interpretation, in which the noun labels the proposition expressed by the CP. As such it allows for any propositional noun, including non-representational ones.

Turning to definiteness, we have proposed to encode weak-article definiteness with a \( w \) feature on the D found in the bare DC (i.e. the D that takes a CP complement and NP specifier). We believe it is no accident that it is exactly the weak-article definite determiner that occurs in the bare DC. In particular, the weak article expresses pure uniqueness making it uniquely suitable to combine with a CP which expresses a unique proposition.

3.3.3 PPs, APs, and extraposability

The underlying structure we propose for the bare DC is substantially different from the one we propose for the prepositional DC: instead of NP being a complement to D, NP is a specifier to \( D_w \), and instead of the (P-encased) CP adjoining to DP, the CP is the complement of \( D_w \). However, head-raising of \( D_w \) to above NP and the availability of rightward extraposition of CP to adjoin to DP minimize the surface effects of these underlying
structural differences. For instance, if the DC contains a (second) PP, that PP precedes the CP in both structures:

(59) aftal-en [med læg-en] om at han fornyer recept-en hver måned
agreement-DEF with doctor-DEF about that he renews prescription-DEF each month
‘the agreement with the doctor that he refills the prescription each month’

(60) den aftale [med læg-en] at han fornyer recept-en hver måned
DEF agreement with doctor-DEF that he renews prescription-DEF each month
‘the agreement with the doctor that he refills the prescription each month’

This ordering reflects a general preference for CP dependents to follow PP dependents, in Danish and in many other languages (Dryer 1980:145–174, Grosu and Thompson 1977:139ff, Moulton 2015:310, Schmidtke-Bode and Diessel 2017:e.g. 70). We don’t know the ultimate source of this preference, but the two DC structures we propose both allow for it, as long as we assume that CPs encased in a PP count as CPs with respect to this ordering principle. In (59) the observed order reflects order of adjunction: [pp P DP] adjoins before [pp P CP] as in (61). In (60) the PP-before-CP order comes about through extraposition of the CP complement of D across the PP, as in (62). (We assume that adjunction and extraposition both target the highest nominal projection, which is DP in (61) and dP in (62)).

(61)
Crucially, the definiteness marking is not affected by the presence of the second PP: the bare DC still receives prenominal definiteness marking and the prepositional DC suffixal definiteness marking. Under our analysis this is because the PP adjoins to DP and as such does not affect the configuration of D and NP, which is what determines definiteness marking. Thus in the prepositional DC, D is the sister of a minimal NP, whether or not a second PP is adjoined to DP, and thus the condition for suffixal definiteness marking is met. In the bare DC, that condition is not met—D is a sister to CP—and adjunction of a PP to DP, of course, does not change this fact. Consequently the definite D is realized as a prenominal article, the elsewhere case.

The signature semantic difference between the two types of DCs—prepositional DCs involve strong-article definiteness and Bare DCs involving weak-article definiteness—is also unaffected by the addition of the PP. Thus (59) fits naturally in a sentential context like (63), where the prepositional DC is the complement of a factive verb, whereas (60) is felicitous with a verb of creation, as in (64). (See sections 2.1 and 3.3.2 for discussion of this semantic difference.)

(63) Vi er glade for aftal-en med læg-en om at han fornyer recept-en

we are glad for agreement-DEF with doctor-DEF about that he renews prescription-DEF
‘We are pleased with the agreement with the doctor that he refills the prescription each month.’

(64) Vi lavede den aftale med læg-en at han fornyer recept-en hver måned.
we made the agreement with doctor-DEF that he renewes prescription-DEF each month.

‘We made the agreement with the doctor that he refills the prescription each month.

If the two DCs are switched, as in (65) and (66) below, the resulting sentences are infelicitous:

(65) #Vi er glade for den aftale med læg-en at han fornyer recept-en hver måned.
we are glad for the agreement with doctor-DEF that he renewes prescription-DEF each month.

(66) #Vi lavede aftal-en med læg-en om at han fornyer recept-en hver måned.
we made the agreement-DEF with doctor-DEF about that he renewes prescription-DEF each month.

The infelicity of (65) and (66) shows that the hypothesized link between syntax and semantics in the realm of DCs is a stable one which persists in the context of additional

---

\(^{26}\) (66) can be rescued by focus accent on the subject vi ‘we’. Subject focus makes the maker of the agreement the new information in the sentence, allowing for an anaphoric reading of the prepositional DC: the agreement is part of the common ground, it’s the identity of one of the parties of the agreement that is being established, not the existence of the agreement itself.
DP material, such as a postnominal PP. We take this as evidence that an analysis where the difference between the two DCs is built into their core underlying configuration, as we have proposed to do, is on the right track. (Recall from sections 2.1 and 3.3.2 that the bare DC expresses weak-article definiteness, whereas a definite prepositional DC expresses strong-article definiteness.)

Finally, we turn to an important interaction between DCs and extraposition. The hypothesized structural difference between the two DC constructions correlates with extraposability of the CP: the bare DC allows the CP complement to D to extrapose, the prepositional DC does not allow the P-encased CP to extrapose. To establish the structural significance of this we first need to consider extraposition of relative clauses. As is well known (since Ross (1967:1)) a restrictive relative clause can occur in an extraposed position, as in (85)–(69).

(67) A man is at the door who wants to sell us some encyclopedias.

(68) We sent the man away who wanted to sell us some encyclopedias.

(69) A gun went off which I had cleaned. (Ross 1967:1, ex. 1.2)

What is less well known (though observed by Vergnaud (1974:81)) is that non-restrictive relative clauses are not similarly extraposable:

(70) a. Your cousin Harvey, who again wants to borrow money, is at the door.
   b. *Your cousin Harvey is at the door, who again wants to borrow money.

(71) a. We sent your cousin Harvey, who was again asking for money, away.
   b. *We sent your cousin Harvey away, who was again asking for money.

\footnote{For simplicity we use English examples for illustration. The Danish facts are parallel.}
a. John, who had just caught the inspector’s ire, exploded.

b. *John exploded, who had just caught the inspector’s ire. (Emonds 1979:234)

Mysterious as it is, it looks like there is a difference in extraposability between restrictive relative clauses, presumably adjoined to NP, and non-restrictive ones, presumably adjoined to DP.\(^{28}\) Let us provisionally call it the High Adjunct Freezing Effect: an element adjoined to DP cannot further extrapose to adjoin even higher to some other constituent.

Recall that our analysis of Danish prepositional DCs led us to the conclusion that in them the PP containing CP is adjoined to DP, as in (47). If this is correct, they should be subject to the High Adjunct Freezing Effect, while the CP in a bare DC, which originates as a complement to D, should not. These predictions are correct, as seen in (73)–(74):

(73) De fremførte den påstand på mød-et at fyringer-ne var absolut nødvendige.
they advanced the claim at meeting-DEF that lay-offs-DEF were absolutely necessary

‘At the meeting they made the claim that the lay-offs were absolutely necessary.’

(74) *De benægtede påstand-en på mød-et om at fyringer-ne var absolut
they denied claim-DEF at meeting-DEF about that lay-offs-DEF were absolutely
necessary

Intended: ‘At the meeting they denied the claim that the lay-offs were absolutely necessary.’

In (73) we have a weak-article bare DC (‘the claim that the lay-offs were absolutely necessary’) and the CP is extraposed across the PP dependent of the main verb (‘at the

\(^{28}\)We thank Jim McCloskey and Ivy Sichel for help with the literature on extraposition of relative clauses; see Sichel (2018:365-371) for relevant discussion of extraposability of restrictive relative clauses.
The ungrammaticality of (74) shows that the CP complement of an anaphoric prepositional DC cannot extrapose out of the prepositional DC.\footnote{There is a reading of (74) where the PP på mød-et is a modifier of the N påstand-en.}

### 3.4 Bare DCs with no N

Further support for our head-raising analysis of bare DCs comes from the constructions illustrated in (75) and (76). (Julien (2005:95, 96) cites corresponding Norwegian data.)

(75) Så sker der [det at alle forsvinder på en gang].

then happens expl the that everyone disappears on one time

Then it happens that everyone disappears at once.

(76) Så sker der [det mærkelige at alle forsvinder på en gang].

then happens expl the strange that everyone disappears on one time

Then happens the strange [thing] that everyone disappears at once.

These look like bare DCs, in that they involve the prenominal definite article and a CP. Moreover, they occur as the pivot of an expletive construction and so are clearly weak-article definites and not anaphoric. However, they lack a noun.\footnote{Or it is possible that they contain a null noun; see Moulton (2017) for relevant discussion.} Instead they have either nothing between D and CP (75) or an adjective appears between D and CP (76). We propose to extend our analysis of the bare DC to these structures as in (77) and (78) respectively:

(77) dP

\[
\begin{array}{c}
  \text{dP} \\
  \text{d} \\
  \text{D} \\
  \text{d} \\
  \text{D'} \\
  \text{t} \\
  \text{CP}
\end{array}
\]

In (77) D takes a CP complement inside a dP shell. The specifier of DP, where the N of a
regular bare DC resides, is empty, accounting for the adjacency of D and CP in (75). The structure in (78) is identical, except that an AP occupies the specifier of DP. Head-raising of D to d results in the word order observed in (76): D A CP. The existence of these two constructions underscores our central claim that the primary relationship of the DC is that between D and CP.

A further indication of the tight relationship between D and CP in the bare DC, and the variations on it in (75) and (76), is that the CP is required and cannot be omitted.\(^{31}\)

(79)  
\begin{align*}
\text{a. Han fremførte den pæstand at alle var forsvundet på en gang.} & \quad \text{He made the claim that everyone has disappeared at once.} \\
\text{he forth.carry the claim that everyone was disappeared on one time}
\end{align*}

\begin{align*}
\text{b. *Han fremførte den pæstand.} & \quad \text{Intended: He made the claim.}
\end{align*}

(80)  
\begin{align*}
*\text{Så sker der det.} \quad & \text{[Compare with (75)]}
\text{then happens EXPL the}
\end{align*}

(81)  
\begin{align*}
*\text{Så sker der det mærkelige.} \quad & \text{[Compare with (76)]}
\text{then happens EXPL the strange}
\end{align*}

Neither of these noun-less variants is possible with the prepositional DC:

(82)  
\begin{align*}
*[\text{det om at alle forsvandt på en gang}] \quad & \text{the about that everyone disappeared on one time}
\end{align*}

(83)  
\begin{align*}
*[\text{det mærkelige om at alle forsvandt på en gang}] \quad & \text{the strange about that everyone disappeared on one time}
\end{align*}

\(^{31}(79b)\) is grammatical if \textit{den} is stressed and interpreted as a demonstrative. The string \textit{det mærkelige} in (81) can function as a well-formed DP under NP-ellipsis, but that interpretation is unavailable here because the expletive construction disallows an anaphoric definite as pivot.
We interpret this as evidence that in the prepositional DC the presence of the (PP-encased) CP is licensed by the noun. In the terms of the semantic distinctions drawn in section 2.2 and Grimshaw’s (1990) theory of extended projection, we can conclude that only nouns, and more specifically only representational nouns, allow a PP-encased CP to adjoin to its extended projection.

3.5 On the distribution of $d$

A natural question to ask at this point is what the distribution of $d$ is. Is it present in all nominal projections or only in some or is it limited to the bare DC? At present we do not have a clear way of answering that question. What is clear is that if all nominal projections have a $d$-layer then $D$-to-$d$ movement needs to be restricted. If $D$ invariably moved to $d$, a definite $D$ would invariably be realized as a prenominal article (because in its spell-out position it is not a sister to a minimal $N$), contrary to fact.

To our minds, a more attractive position is that $d$ selects $D_w$, and therefore is only present in bare DC, and invariably attracts $D_w$ by head movement. In that sense, $d$ is a defective functional head with a very limited distribution. A reviewer asks what, if anything, is the correspondent of $d$ in the clausal domain. We don’t have a firm answer, but it seems worth noting that recent work on islandhood in Danish (Nyvad et al., 2017) posits a $c$ head projected above CP, also with a very limited distribution.

3.6 Other head-raising structures

The configuration that led us to the little $d$ analysis, where a head appears to select two arguments both appearing to its right, is actually pretty common. In this section we will briefly discuss several other cases of head-initial structures in which the head interacts with
two other elements in just the way D[def] does with NP and CP.\textsuperscript{32}

**Ditransitive verbs** The first, of course, is the ditransitive verb construction V DP DP (show Harvey the photos). We have already noted that the vP-shell analysis of this construction was the inspiration for our dP-shell analysis of the bare DCC.

\begin{figure}[h]
\centering
\begin{tikzpicture}
  \node (v) {vP}
  child {node {v}}
  child {node {VP
    \node (dp) {DP}
    child {node {V}}
    child {node {DP}}}};
\end{tikzpicture}
\end{figure}

The VP is complement of a higher functional head (little v in most current accounts); its two arguments are in specifier and complement positions to V, and the surface order is derived by head movement of V to v. Such an analysis is now widely accepted as an account of the ditransitive V construction.

**Comparatives** In the comparative construction ((85), (86); see also (87), (88)) the comparative clause is selected by the comparative morpheme (more in (85), (86)), and therefore, as acknowledged, e.g. by Kennedy and Merchant (2000:102) the comparative clause should be an argument of more, as should the AP/NP/ADVP in the construction.

\begin{align*}
(85) & \quad \text{The coat was *(more) expensive than I wanted it to be.} \\
(86) & \quad \{\text{More/*The}\} \text{ cats than I could count were on the porch.} \\
(87) & \quad \text{The coat was less expensive than I wanted it to be.} \\
(88) & \quad \text{Sally is less afraid of goats than I am.}
\end{align*}

\textsuperscript{32}Several of these cases are also given a similar treatment in Larson (1991) (reprinted in Larson (2014)).
These requirements can be met if we assume that the Deg head *more*, like a ditransitive V, has its two arguments as specifier and complement in initial structure, as depicted in (89), and undergoes head raising to a higher head position (deg) as in (90):

(89)  
\[ \begin{array}{c}
\text{degP} \\
\text{deg} \\
\text{degP} \\
\text{NP} \\
\text{Deg'} \\
\text{more} \\
\text{CP}
\end{array} \]

(90)  
\[ \begin{array}{c}
\text{degP} \\
\text{deg} \\
\text{degP} \\
\text{more} \\
\text{deg} \\
\text{NP} \\
\text{Deg'} \\
\text{t} \\
\text{CP}
\end{array} \]

Of course, the syntax of comparatives is enormously complex, and must involve other principles and operations to account for the order of elements in more complex examples such as (91):

(91)  
\text{She has a more expensive car than I do.}

which, according to our assumptions, would have an initial structure like:
with some interesting stuff hidden in the . . ., and some obligatory extraposition of the CP, apparently to avoid being trapped inside a prenominal NP modifier. Our proposal is only intended to clarify the underlying relations between Deg and its arguments.\footnote{Similar complexities arise in the other constructions considered in this section:}

\textbf{As-comparatives} The type of comparative construction exemplified in (93)–(94), like \textit{more/less \ldots than \ldots} comparatives, is also bivalent:

(93) My cat is (half) as big \{as/*than/*that\} yours is.

(94) My dog is as fond of tennis balls as yours is.

This leads to an analysis in which the first \textit{as} is a Deg-like element, taking an AP specifier and a CP headed by \textit{as} as a complement:

\footnote{i. as strong an argument as he could muster

ii. too shitty a book to assign to a class

iii. The man was so severely affected by hallucinations that we had to isolate him.}
Too/enough  Like the ordinary comparative construction, the too-Adj construction involves three elements, a functional head, a lexical head and its surrounding lexical phrase, and a CP, where the CP is licensed by the functional head, though they are superficially on opposite sides of the lexical head.

(96) *(too) heavy for there to be only a puppy in it.

While the standard assumption these days is that the complement of too (a Deg) should be an AP, we propose instead (in essential agreement with Larson (1991, p.52)) that its complement is a CP, and the AP is a specifier:

(97) Harvey’s too full of shit for there to be any use talking to him.

The surface order is produced by head movement of Deg to the higher functional deg position. Note that, just as the proposed structure suggests, the A can have a complement of its own:

(98) Harvey’s too full of shit for there to be any use talking to him.
The man is too fond of his dog to even consider selling it.

The *enough* construction can be seen as the same structure, except that for some reason the Deg does not raise to the higher position.\(^{34}\)

That dog is mean enough that I wouldn’t want to be left alone with him.

The rock is heavy enough to hold the lid on the can even on a windy day.

So . . . that . . . The Deg *so* takes an AP and a CP argument.\(^{35}\)

His prose is *(so) laden with jargon that you can’t understand it.*

*(So) many people were talking that you couldn’t hear a word at the lecture.*

(103), of course, exhibits extraposition of the CP not only out of the DegP (as discussed in connection with (92) above), but also out of the subject DP all the way to the right. This, however, is just extraposition from DP. Before any extraposition, the structure we propose is (104):

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\(^{34}\)Larson (1991) suggests that *enough* does raise in such constructions, and then an additional operation causes the Adjective to join it. Some support for this may come from the preferred order when A has a PP complement:

i. She is fond enough of chocolates that we better not leave her alone with a bag of them.

(The order *fond of chocolates enough* . . . does not sound ungrammatical, but (i) is clearly preferred.)

\(^{35}\)The *so . . . that . . .* construction is actually a member of a wider class of such constructions, all of which raise the same dependency issues:

i. The interior was *(sufficiently) damaged that it would have to be completely redone.*

ii. The students were *(well enough) prepared that I didn’t have to summarize the article.*
such ... that ... Consider (105) and (106):

(105) My cousin is *(such) a jerk that I want to be rid of him.

(106) Such a clatter was heard on the rooftop that we sprang to the window to see what was the matter.

In this construction, the element such appears to be a kind of degree word that takes an indefinite DP and a that-CP as arguments. We might propose a structure something like (107):

(107)

Though we privately suspect that it is more complex than this, and that the DegP is really inside the DP, somehow modifying the NP jerk. In any case the bivalent nature of the such ... that ...-construction points to an analysis involving a deg-shell.

In this section we have examined a number of bivalent constructions in English, noting in each case that if we hold to the assumption that we started with, namely that selection
is an indication of argument structure, we are led to an analysis involving a Larsonian-like functional shell. The similarity among all these constructions, that a superficially initial head seems to select two phrases which follow it, is the characteristic that they share with the Danish bare DC construction. We thus suggest that the solution to one is the solution to all.\footnote{\textit{Someone braver than us might consider trying to extend this line of analysis to the notorious \textit{hard nuts} construction (Berman 1974, Fleisher 2008, O’Flynn 2008): That’s going to be a tough nut to crack.}}

4 English DCs

We have argued that strong- and weak-article definite DCs in Danish have very different structures, as revealed by the presence vs. absence of a preposition combined with the structure-sensitive allomorphy of the definite morpheme. Hawkins (1978:130–149) has argued persuasively that there is a semantic difference to be made between anaphoric (Schwarz’s strong-article) and referent-establishing (Schwarz’s weak-article) definites in English, but did not suggest a corresponding syntactic difference. None of the authors we cited in section 3.1 who proposed analyses of DC constructions distinguished between anaphoric and referent-establishing DCs. In this section we consider the question whether anaphoric and referent-establishing DCs in English might also have different structures, heretofore hidden from view by the absence in English of the overt structural signposts afforded by Danish.

Of course, since the two overt symptoms of the different syntactic structures in Danish (definite marking and the presence of P before CP) are absent in English, the evidence in English is going to be more subtle. We believe, however, that there are some indications of a duality of structure.

The examples in (108) below show that English has both referent-establishing and
anaphoric DCs (Hawkins, 1978). The a.-example involves a referent-establishing DC, whereas the b.-example involves an anaphoric DC.

(108) a. We made the pledge that we would refrain from doing syntax.
    b. We broke the pledge that we would refrain from doing syntax.

Hawkins observes that the two differ in whether possessors are allowed:

(109) We \{denied/*made\} Harvey’s claim that his pig could fly.

whether they can be indefinite (cf. Hawkins 1978:143):

(110) a. We resented the/*an allegation that the game was fixed.
    b. We made the/an allegation that the game was fixed.

and whether they can be plural:

(111) We resented/*made the allegations that they were cheating.

Note that the inability of referent establishing DCs to be plural, to be possessed, or to be indefinite corresponds exactly with the properties of the bare DC as established in section 2. In terms of our analysis, we can account for these properties straightforwardly: we assume that finite CPs invariably denote propositions, and propositions are unique (there is only one proposition, for example, that the earth is flat). There can be no plural of a unique thing, nor can a unit denoting a unique thing combine directly with an indefinite determiner, a demonstrative or a possessor, all of which presuppose anti-uniqueness of the denotation of whatever they are combining with. The one determiner that is directly compatible with a finite CP is $D_w$. In the prepositional DC construction, the D is combining directly with an NP, which denotes a class and not a unique entity. This is what permits
Ds other than \(D_w\) in that construction. If we can transplant the bare vs. prepositional DC distinction to English, we will have accounted for the restrictions on referent establishing DCs noted by Hawkins.

We have discovered two kinds of evidence that English, like Danish, has two different structures for DCs, correlating with the anaphoric and referent-establishing distinction.

The first of these is a straightforward NPI-licensing test. If the structures in (112) and (113) differ along the lines of their Danish counterparts, we should expect a difference in licensing of an NPI within the CP by a negative in the D position:

(112) We made the agreement that Harvey would get some money.

(113) We broke the agreement that Harvey would get some money.

There is a difference, exactly as predicted if the structures of the English examples mirror those of the corresponding Danish ones:

(114) We made no agreement that Harvey would get any money.

(115) *We broke no agreement that Harvey would get any money.

These differences are accounted for if we assume that English referent-establishing DCs have, like Danish, a structure where the CP is in a low position (Complement to D in our analysis), but in the anaphoric DC the CP is adjoined high, as an adjunct to DP.

The second argument is based on facts of extraposability. In section 3.3.3 we noted that Danish DCs of the two types exhibit different extraposability potential: the CP in the bare DC, which we have identified as unambiguously referent-establishing, can extrapose freely, while the CP in the prepositional DC resists extraposition. If the structure of English DCs mirrors the structure of Danish DCs, we might expect a difference in extraposability
to show up in English DCs parallel to that observed for Danish. Here are the literal translations of examples (73)–(74): into English:

(116) They made the claim at the meeting that the layoffs were absolutely necessary.

(117) ??They denied the claim at the meeting that the layoffs were absolutely necessary.

Some speakers that we have consulted say that (117) is grammatical, but a majority judge it less acceptable than (116). A possible problem with (117) is that it is possible to interpret the PP at the meeting as a modifier of the N claim, in which case there need be no extraposition. Indeed, more people reject (119) than (117):

(118) They made the claim emphatically that the layoffs were absolutely necessary.

(119) ??They denied the claim resolutely that the layoffs were absolutely necessary.

The effect is even stronger when the DC is in subject position:

(120) a. The claim was advanced that unicorns once existed.

b. ??The claim was refuted that unicorns once existed.

And stronger yet if the anaphoric interpretation is reinforced by a possessor:

(121) a. Harvey’s proposal that we raise some pigs was rejected.

b. ??Harvey’s proposal was rejected that we raise some pigs.

A reviewer raised questions about whether we could be sure that extraposition is involved in the passive examples. We don’t understand how it could not be involved, but we have found similar differences in examples that do not involve the passive:

(122) a. Did the suspicion arise that you stole the money?

b. ??Did the allegation disturb you that you stole the money?
We conclude that there is a difference in extraposability, both from subject and from object position. We do not pretend to understand the High Adjunct Freezing Effect, but it seems to be real, and to provide a diagnostic, if a tenuous one, for structure. What it indicates, in its tenuous fashion, is that anaphoric DCs in English have a behavioral similarity to their Danish counterparts which we can make sense of if we assume that they have a similar structure.

These facts make sense if we assume that English, like Danish, has different structures for anaphoric and referent-establishing DCs, with the CP in an anaphoric DC adjoined to DP while the CP in a referent-establishing DC originates in a low position.

We suggest, then, that anaphoric and referent-establishing DCs in English have different structures, just like those we have proposed for Danish: referent-establishing DCs involve a D taking a CP complement, and head-movement of the D to a higher little d position; while anaphoric DCs have a structure where the CP is adjoined at the level of DP.\footnote{We leave aside the potentially interesting question whether the English anaphoric DC contains a silent P.}

5 Conclusion

If our analyses are accepted, the central puzzle posed by the interaction between definiteness marking and the distribution of the bare and prepositional DCs in Danish is solved. The solution involves positing two different structures, one where a preposition-encased CP is adjoined to DP and one where a bare CP is initially a complement of D[DEF], in which D then raises to a higher functional head, accounting for the selectional properties and the surface order of the parts of the construction.

The proposed structure for prepositional DCs is consistent with earlier work on Scandinavian DPs showing that PPs are never complement to N or D, but always adjoined to DP.

We have demonstrated that the different structures correspond to a semantic/pragmatic difference: bare DCs are always referent establishing, while definite prepositional DCs are always anaphoric (in the sense developed by Hawkins (1978:130–149)).

Reviewing several discussions from the literature about the nature of DC constructions in English, we have found some evidence that English also has two structures, which also correspond to the anaphoric vs. referent-establishing distinction, but neither structure is what previous authors thought it was.

In particular, several past analyses of “D N CP” liken the DC to apposition, but struggle to provide a specific syntactic structure for this apposition. Reviewing the literature on apposition, and close apposition in particular (Acuña-Fariña 2009, Burton-Roberts 1975, Haugen 1953, Hockett 1955, Lee 1952, Lekakou and Szendrői 2012, Meyer 1989, de Vries 2008:51–52), we are sympathetic to their struggles. As far as we can tell, scholars working on (nominal) close apposition (the poet Burns) have struggled equally to assign it a syntactic structure, some going so far as to say that its structure is indeterminate (Meyer, 1989) or that it doesn’t have a fixed internal structure (Acuña-Fariña, 2009).

These analyses of DC constructions all seemed to incorporate the intuition that the CP must be in apposition with the N, which is also what is sometimes assumed in the close apposition literature for the parallel “D N Name” construction (cf. e.g. Burton-Roberts (1975:400)).

The Danish definiteness exponence evidence indicates that if the prepositional DCs involve close apposition, it cannot have the structure [D [N [P [CP]]], but rather [[D N] [P [CP]]]. Interestingly, the allomorphy of definiteness also tells us that the structure of
nominal close apposition too involves D and N combining first, before the resulting DP combines with the Name:

(123) digter-en Burns
    poet-DEF B. 
    *the poet Burns*

(124) tall-et syv
    number-DEF seven 
    *the number seven*

(125) farv-en lilla
    color-DEF purple 
    *the color purple*

The realization of the definite morpheme as a suffix clearly indicates that the structure is \([D N] \text{Name}\) and not \([D [N \text{Name}]\]. So the scholars who wanted to assimilate the structure of DCs to that of nominal close apposition may well have been right, but the structure has to be \([D N \text{CP}]\), and not \([D [N \text{CP}]\].

In the introduction we discussed the insight expressed by Stowell (1981) and others that the relation between an N and the CP is a DC construction is semantically different from the relation between the corresponding V and a CP in a V+CP combination. Stowell suggested that “apposition” might be a better name for the relation between the N and the CP, and this idea is repeated by de Cuba (2017). Now that we have a firmer grasp of what the syntactic structure has to be, we can return to the question of the semantic relation between the N and the CP.

Let us first consider the bare DC construction. Given the structure we have proposed, we would not expect the N to assign a Θ-role to the CP, since they are never in a head-complement relationship. Rather, the NP and the CP are co-arguments of a functional
head which simply denotes weak definiteness (and, being functional, does not assign any Θ-roles either). We suppose that the semantic relation between the co-arguments of this head is much like the semantic relation between co-arguments of the copula, i.e. some sort of equivalance, inclusion, or identification. This, we tentatively propose, is part of the “apposition” that Stowell and others were looking for.

The prepositional DCs also have an appositional relation between the N and the CP, and we have argued that the syntactic structure is very different. In this case the CP (encased in a PP) is adjoined to DP. How is the semantic relation between the N(P) and the CP established in this case? Here we assume that the adjunction structure corresponds semantically to nonrestrictive composition, i.e. the same kind of relation that holds between a DP and an adjoined non-restrictive relative clause. This too can be loosely seen as a kind of “apposition” (the non-close kind).

Our analysis provides an answer to the question why D[w] is the only D that can participate in a bare DC construction, and correlates that structure with the semantic properties identified by Hawkins as “referent-establishing” and Schwarz as “weak”. We have not provided an explanation for why this D must move to the higher position that we have identified as little d. We close by noting that this is not isolated behavior: in section 3.6 we discussed several other cases of head-initial bivalent structures (including the well-known one of ditransitive verbs), and noted that in all of them selection relations indicate that the head in question has two arguments, and appears to the left of both of them. In fact, the only heads in English that have anything overt in their specifiers are C, T, and (possessive) D, and in every such case it is arguable that the element overtly in the specifier originated somewhere lower down and moved to its superficial position due to some EPP feature on the head. We don’t know why it is, but we find it striking that in English, and in Danish, every head that can have multiple arguments finds a way to appear to the left
of all of them, unless someone else’s EPP pulls one away. Setting aside the mysterious
*enough*-construction, heads in left-headed languages get to be to the left of *all* of their
arguments.
References


61


