

CP Complements to D

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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 that 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 coarguments of D and in the other it is nonrestrictive composition.

Keywords: DP-internal structure, clausal complements, definiteness, Danish, selection, apposition

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 sister (thus a complement, in structural terms) of the N (e.g., Rosenbaum 1967:3–5, Chomsky 1970:195, Kiparsky and Kiparsky 1970:157, Stockwell, Schachter, and Partee 1973:508; see also Huddleston and Pullum 2002:439). Since at least Stowell 1981, however, various objections have been raised

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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 “apposition” (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 (2015:313) suggests that the CP and the N 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 by Arsenijević (2009), Haegeman and Ürögdi (2010:132–134), Kayne (2010:212–215), and Haegeman (2012:272–275). De Cuba 2017:3–28 provides convincing arguments against these covert relative clause analyses, but remains carefully agnostic about whether such CPs are adjuncts or complements (p. 40). Drawing yet different connections to relative clauses, Krapova and Cinque (2016) argue that at least some “complement” CPs are reduced nonrestrictive relative clauses, and Aboh (2005) suggests that the entire DC construction is a truncated relative CP.

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 article, 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-bar theory of the standard kind provides the appropriate structures. We don’t need anything particularly mysterious or fancy.¹

¹ A 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 occurs 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.

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, and 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

- (3) den ide at ingefær gavner fordøjels-en [bare DC]³
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; rather, a preposition intervenes between the two.

- (4) en ide om at ingefær gavner fordøjels-en [prepositional DC]
an idea about that ginger aids digestion-DEF
'an idea that ginger aids digestion'
- (5) ide-en om at ingefær gavner fordøjels-en [prepositional DC]
idea-DEF about that ginger aids digestion-DEF
'the idea that ginger aids digestion'

The two kinds of DCs interact differently with definiteness marking. When D = [DEF], the definite morpheme,⁴ the bare DC invariably uses the prenominal article, as in (3), whereas the prepositional DC uses the suffixed form, as in (5) (unless the presence of an attributive adjective forces the prenominal article).⁵

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 show in section 3. The

² We use the following abbreviations in the glosses: DEF = definite, EXPL = expletive, PASS = passive, REFL = reflexive, SELF = reflexive.

³ We need convenient labels for the two kinds of DC. We have chosen the labels *bare* and *prepositional* because in one the CP is "bare," while in the other the CP is encased in a prepositional phrase. So when we speak of the "bare DC," we mean the DC in which the CP is bare; when we speak of the "prepositional DC," we mean the DC in which the CP is encased in a PP.

⁴ There are several elements that may be viewed 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 that we will call D[DEF] and that 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, Hankamer and Mikkelsen 2002, 2005, 2008, 2018, Julien 2005), in which it surfaces sometimes as a freestanding 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.

⁵ 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 a Head-Driven Phrase Structure Grammar analysis; and in a previous article (Hankamer and Mikkelsen 2018:70–72), we discuss DCs briefly and adopt the traditional analysis of CP as a complement to N. We know of no articles devoted to the study of DCs, nor are they discussed in Delsing 1993, Börjars 1998, or 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, whereas 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

main purpose of this article 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 only in morphosyntactic properties but also in (a) the head nouns they allow and (b) the semantic/pragmatic status of the DC. We next present a syntactic analysis, in 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 that we can extend quite naturally to English, providing a more satisfactory account than any of those cited at the beginning of this section. In section 5, we conclude and relate our results to the general problem of the nature of apposition.

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-DEF
'the idea that ginger aids digestion'
- (7) ide-en om at ingefær gavner fordøjels-en [prepositional DC]
idea-DEF about that ginger aids digestion-DEF
'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;⁶ indefinite, possessive, and demonstrative determiners require the prepositional DC, as (8) shows.⁷

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, Lie, and Vannebo 1997:272–274) and Swedish (Teleman, Hellberg, and Andersson 1999:42, 95, 103, 121–128) suggests that DCs form another area of complex variation among the mainland Scandinavian languages.

⁶ 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 (i) and (ii).

- (i) 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
'I heard two rumors that you are thinking about resigning.'
- (ii) Din skøre ide *(om) at CPer er udsagnsord . . .
your crazy idea about that CPs are predicates
'Your crazy idea that CPs are predicates . . .'

Both are impossible with the bare DC, reinforcing our claim that the restriction on D in the bare DC is a hard syntactic fact.

⁷ Strings like the ungrammatical ones in (8) do occur, as the following grammatical examples show:

- (8) en/hans/denne ide *(om) at ingefær gavner fordøjels-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.⁸ Further possible evidence for there being a selectional relationship between D and CP in the bare DC comes from the contrast between (6) and (9).⁹

- (9) a. *det spørgsmål hvorvidt ingefær gavner fordøjels-en
the question whether ginger aids digestion-DEF
Intended: ‘the question whether ginger aids digestion’
b. *det spørgsmål hvem vi skal give nøgl-en til
the question who we shall give key-DEF to
Intended: ‘the question who we should give the key to’

The bare DC allows declarative CPs (6), but not interrogative ones (9). In contrast, the prepositional DC allows both declarative (7) and interrogative (10) CPs.

- (10) a. spørgsmål-et om hvorvidt ingefær gavner fordøjels-en
question-DEF about whether ginger aids digestion-DEF
‘the question whether ginger aids digestion’
b. spørgsmål-et om hvem vi skal give nøgl-en 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 freestanding article, never the suffixed form.

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- (i) Det var [_{DP} hans ide] [_{CP} at vi skulle putte ingefær i supp-en].
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 fordøjels-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.

⁸ A reviewer points 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.

⁹ We say “possible evidence” because, as a reviewer points out, the contrast between (9) and (10) is equally compatible with this particular N (*spørgsmål* ‘question’) selecting a PP but not a CP.

- (11) *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 an adjective is present, as in (46b) in section 2.4) the form of the D must be suffixal.¹⁰

- (12) ide-en om at ingefær gavner fordøjels-en
idea-DEF about that ginger aids digestion-DEF
'the idea that ginger aids digestion'
- (13) *den ide om at ingefær gavner fordøjels-en
DEF idea about that ginger aids digestion-DEF

These facts can be summarized as follows:

1. The bare DC must be headed by the definite determiner D[DEF].
2. The form of D[DEF] in the bare DC is always the freestanding article.
3. The prepositional DC can be headed by any D, including D[DEF].
4. 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 morphosyntactic differences between the bare DC and the prepositional DC examined above, the two constructions 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.

- (14) Der blev fremført [den påstand at EU er på vej mod opløsning].
EXPL became put.forth the claim that EU is on way toward dissolution
'The claim was made that the EU is on the path toward dissolution.'
Lit.: There was made the claim that . . .
- (15) *Der blev afvist [påstand-en om at EU er på vej mod opløsning].
EXPL became rejected claim-DEF about that EU is on way toward dissolution

Second, a bare DC, but not a definite prepositional DC, can occur as the object of a performative verb.

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

¹⁰ (13) is grammatical if *den* is stressed, but then *den* is unambiguously a demonstrative D, not a definite article.

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

More generally, verbs of creation take bare DC complements (18), whereas prepositional DCs occur as complements of verbs that presuppose the existence of their complements (19).¹¹ (We will rely on this diagnostic in the discussion of English DCs in section 4.)

- (18) a. 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.'
b. #Vi lavede aftal-en om at alle rydder op efter sig selv.
we made agreement-DEF about that everyone cleans up after REFL SELF
'We made the agreement that everyone cleans up after themselves.'
- (19) a. #Vi overholdt den aftale at alle rydder op efter sig selv.
we kept the agreement that everyone cleans up after REFL SELF
'We kept the agreement that everyone cleans up after themselves.'
b. 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.'

Third, only the prepositional DC can be used with a linguistic antecedent. Consider the example in (20); for simplicity the discourse containing the antecedent is given only in English.

- (20) 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.
- a. Påstand-en om at man ikke forstår situation-en kommer i dette
claim-DEF about that one not understands situation-DEF comes in this
tilfælde fra Simon Emil Ammitzbøll.
case from Simon Emil Ammitzbøll
'In this case the claim that one doesn't understand the situation comes from Simon
Emil Ammitzbøll.'
- b. #Den påstand at man ikke forstår situation-en kommer i dette tilfælde
the claim that one not understands situation-DEF comes in this case
fra Simon Emil Ammitzbøll.
from Simon Emil Ammitzbøll

In this context, the prepositional DC in (20a) is anaphoric to the mention of the claim in the previous linguistic context. The bare DC in (20b) is infelicitous in this context, indicating that bare DCs cannot be anaphoric.

¹¹ (18b) 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 to the agreement that is being established, not the existence of the agreement itself.

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 participants have to declare whether they agree or disagree. A newscaster reporting on the results of the survey can do so using a definite prepositional DC (21a), but cannot do so using a bare DC (21b).

(21) Reporting on an opinion poll:

- a. På påstand-en om at Brexit er værre for Storbritannien end for EU erklærer on claim-DEF about 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
'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 Storbritannien end for EU erklærer 62% on the claim that Brexit is worse for Great.Britain than for EU declare 62% sig enige og 27% sig uenige.
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 particular, we propose that bare DCs are *referent-establishing definites* in the sense of Hawkins 1978:130–148, whereas definite prepositional DCs are *anaphoric definites* (Hawkins 1978:107–115).¹² In a referent-establishing definite, the definite article is licensed by uniqueness—in particular, the uniqueness established by the descriptive content of the DP. In the case of a bare DC, it is the CP that uniquely identifies the claim or rumor in question. An anaphoric definite, on the other hand, requires an antecedent.

With this distinction in place, we can turn to the contrasts above. First, bare DCs are possible in existentials (see (14)) 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 anaphoric definites and require an antecedent. This makes prepositional DCs infelicitous as the pivot of an existential (see (15)), 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 ((16) vs. (17)) 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 prepositional DC is felicitous in (20a) and (21a) 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 Presupposition! principle: a prepositional DC carries stronger presuppositions (uniqueness and anaphoricity) than

¹² Hawkins (1978) actually only uses the term *referent-establishing* for referent-establishing relative clauses. We have extended that term to include referent-establishing DCs (for which Hawkins employs the term *first mention definite*).

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.¹³

On the basis of an examination of definiteness marking in German, Schwarz (2009) develops a theory of (morphologically) “weak” definite Ds that encode uniqueness. “Strong” definite Ds (in addition) encode familiarity. But Schwarz’s analysis breaks down in two cases: restrictive relative clauses, which never permit (morphologically) “weak” Ds, can sometimes be “referent-establishing” (Schwarz 2009:68), that is, encode uniqueness. Schwarz also notes that DCs can have *either* “strong” or “weak” Ds (p. 70). Having nothing to say about these cases, Schwarz does not include them in his analysis, leaving their investigation for future research.

Inspired by Schwarz’s distinction, we propose to locate the referent-establishing (i.e., “uniqueness”) property in the determiner; but since this is exactly the place where Schwarz’s morphological category “weak” separates from the semantic property of uniqueness, we had better not call this “weak” definiteness (though semantically it is the same as what Schwarz identifies with that term); instead, borrowing Hawkins’s (1978) term *establishing*, we propose that the determiner that we have called D_[DEF] is in fact two determiners: a referent-establishing one, which we will designate as D_e, and an anaphoric one, which we might as well call D_a. As far as we can tell, our D_a is semantically equivalent to Schwarz’s “strong” determiner in those cases where it encodes familiarity.¹⁴

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 DCs 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

¹³ Amy Rose Deal (pers. comm., 5 February 2019) questions whether the bare DC is actually definite, given its ability to occur in an existential construction (see (14)). 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 of Maximize Presupposition! in the distribution of the two definite DCs.

¹⁴ It should be noted that we are all building on an observation by Krifka (1984:28):

At least two kinds of definiteness have to be distinguished: one that is based in the common world knowledge of speaker and hearer, and another that is based on the prior introduction of a referent in the ongoing text. . . . This distinction is for one justified by discourse pragmatic reasons, but also by the fact that there are various languages that mark the two types of definiteness differently. These include numerous German dialects with their two series of definite articles (see, e.g., Ebert 1970, Hartmann 1982), but also Lakhota, a Sioux-language (Janice [sic] Williamson, p.c.). (cited and translated in Schwarz 2009:28–29)

propositional noun for a noun that, in some intuitive sense, labels a proposition.¹⁵ Such nouns are characterized by being able to occur in the copula construction in (22).

- (22) 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. *Attitude nouns* denote classes of mental states that relate, epistemically or emotionally, to some proposition or state of affairs. For example:

- (23) *Attitude nouns*
ambition ‘ambition’, antagelse ‘assumption’, bekymring ‘worry’, drøm ‘dream’, fantasi ‘fantasy’, forestilling ‘notion’, forhåbning ‘hope’, formodning ‘presumption’, forventning ‘expectation’, frygt ‘fear’, håb ‘hope’, ide ‘idea’, lyst ‘desire, want’, målsætning ‘objective’, mistanke ‘suspicion’, ønske ‘wish’, opfattelse ‘understanding’, overbevisning ‘conviction’, tanke ‘thought’, tro ‘belief’, viden ‘knowledge’, vished ‘certainty’

Speech act nouns denote classes of possibly complex linguistic acts in which some proposition or series of propositions is expressed, raised, or otherwise evoked. For example:

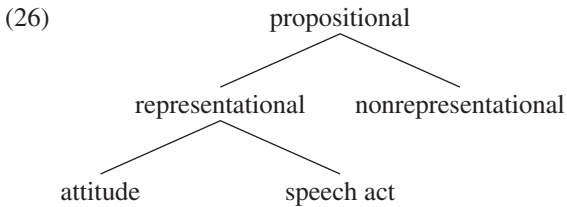
- (24) *Speech act nouns*
aftale ‘agreement’, anmodning ‘request’, antydning ‘suggestion’, argument ‘argument’, bekræftelse ‘confirmation’, besked ‘message’, betingelse ‘condition’, debat ‘debate’, erklæring ‘declaration’, diskussion ‘discussion’, forklaring ‘explanation’, forsikring ‘assurance’, forslag ‘proposal’, forudsigelse ‘prediction’, garanti ‘guarantee’, henstilling ‘request’, historie ‘story’, hypotese ‘hypothesis’, indrømmelse ‘admission’, indvending ‘objection’, klage ‘complaint’, krav ‘demand’, løfte ‘promise’, løgn ‘lie’, lov ‘law’, meddelelse ‘notice’, opfordring ‘suggestion’, påbud ‘order’, påmindelse ‘reminder’, påstand ‘claim’, regel ‘rule’, rygte ‘rumor’, tilbud ‘offer’, trussel ‘threat’, undskyldning ‘apology’

Nonrepresentational nouns categorize propositions relative to some purpose or standard without connecting them to a mental state or linguistic act. For example:

- (25) *Nonrepresentational nouns*
erstatning ‘compensation’, fejl ‘mistake’, fejltagelse ‘mistake’, fordel ‘advantage’, forhold ‘state of affairs’, genistreg ‘stroke of genius’, kendsgerning ‘fact’, konsekvens ‘consequence’, løsning ‘solution’, nederlag ‘defeat’, pris ‘cost’, problem ‘problem’, sejr ‘victory’, sensation ‘sensation’, skam ‘shame’, skandale ‘scandal’, tragedie ‘tragedy’, triumf ‘triumph’, ulempe ‘disadvantage’, ulykke ‘bad luck’, virkning ‘effect’

The first two types are united in being representational, whereas the third type is nonrepresentational. These distinctions are summarized in the taxonomy in (26).

¹⁵ 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 work by Asher (1993), Moltmann (2003a,b), Pryor (2007), and Moulton (2015).



With this terminology in place, we can make the observation that the bare DC is possible with all three types of propositional nouns (27),¹⁶ whereas the prepositional DC is possible only with representational nouns (28).

- (27) a. det **håb** 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 [nonrepresentational N]
 the fact that everyone participates
 d. den **triumf** at alle deltager [nonrepresentational N]
 the triumph that everyone participates
 ‘the hope/demand/fact/triumph that everyone participates’
- (28) a. **håb**-et om at alle deltager [attitude N]
 hope-DEF about that everyone participates
 b. **krav**-et om at alle deltager [speech act N]
 demand-DEF about that everyone participates
 c. ***kendsgerning**-en om at alle deltager [nonrepresentational N]
 fact-DEF about that everyone participates
 d. ***triumf**-en om at alle deltager [nonrepresentational N]
 triumph-DEF about that everyone participates

The contrast between (27) and (28) suggests that the semantic relation between N and CP is different in the two DCs. Mikkelsen (2014), building on Davies and Dubinsky 2003:12–14 and Pryor 2007, 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 N designates an attitude toward, 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.

Putting this together with the observations in the previous section, we can conclude that the bare DC allows the full set of propositional nouns and occurs with referent-establishing definite-

¹⁶ The one exception to this generalization is the speech act noun *spørgsmål* ‘question’, which cannot occur in the bare DC. See the introduction to section 2 for relevant discussion.

Table 1
 Properties of bare and prepositional DCs

	Postnominal D _{def}	D	Anaphoric	Ns
Bare DC	*	only D _{def}	*	unrestricted
Prepositional DC	✓	any	✓	restricted

ness. The prepositional DC is restricted to representational nouns and occurs with anaphoric definiteness.¹⁷ The empirical observations made so far are summarized in table 1.

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.

First, simple definite DPs with no complements or adjuncts require the definite suffix.

(29) film-en
 film-DEF
 ‘the film’

(30) *den film
 DEF film

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

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

¹⁷ 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 nonfinite CP, there are several that permit a finite CP but not a nonfinite one. The ones that do not permit a nonfinite CP are as follows:

- (i) antagelse ‘assumption’, antydning ‘suggestion’, argument ‘argument’, bekræftelse ‘confirmation’, bekymring ‘worry’, besked ‘message’, betingelse ‘condition’, debat ‘debate’, diskussion ‘discussion’, erklæring ‘declaration’, erstatning ‘compensation’, forestilling ‘notion’, forhold ‘state of affairs’, forklaring ‘explanation’, formodning ‘presumption’, forsikring ‘assurance’, forudsigelse ‘prediction’, garanti ‘guarantee’, historie ‘story’, hypotese ‘hypothesis’, indrømmelse ‘admission’, indvending ‘objection’, kendsgerning ‘fact’, klage ‘complaint’, konsekvens ‘consequence’, krav ‘demand’, løgn ‘lie’, lov ‘law’, meddelelse ‘notice’, mistanke ‘suspicion’, opfattelse ‘understanding’, opfordring ‘suggestion’, overbevisning ‘conviction’, påstand ‘claim’, problem ‘problem’, rygte ‘rumor’, tro ‘belief’, undskyldning ‘excuse’, viden ‘knowledge’, virkning ‘effect’, vished ‘certainty’

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’, *fantasi* ‘fantasy’) also have the possibility of denoting an action or state of affairs in the world. However the semantics of apposition is implemented, we assume it will guarantee semantic compatibility between the N and the CP. Because nonfinite CPs do not denote basic propositions (Bhatt 1999), they will be semantically incompatible with an N that can only denote a proposition.

- (32) den nye film
DEF new film
'the new film'

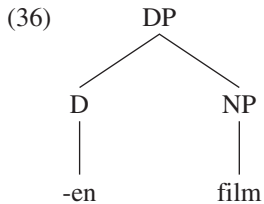
Postnominal PPs license the definite suffix (33), but occur with the definite article if the article is required by another element, such as a prenominal adjective (34).

- (33) a. film-en fra Belgien
film-DEF from Belgium
'the film from Belgium'
b. *den film fra Belgien
DEF film from Belgium
- (34) a. *nye film-en fra Belgien
new film-DEF from Belgium
b. den nye film fra Belgien
the new film from Belgium

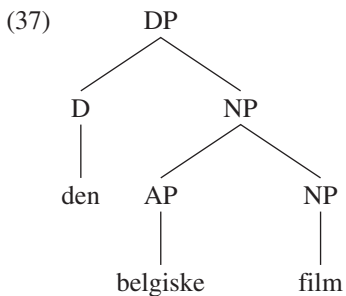
In Hankamer and Mikkelsen 2005, 2008, 2018, we analyze this pattern as in (35).¹⁸

- (35) a. *-en* is found when D[DEF] is sister of a minimal NP (i.e., NP consisting solely of N).
b. *Den* is found elsewhere.

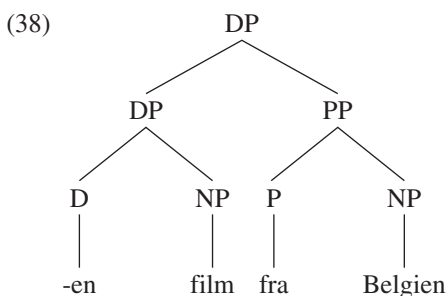
In simple DPs, D[DEF] is a sister to a minimal NP, so the definite suffix is used (36). In DPs with adjectival modification, the NP sister of D[DEF] is not minimal—it contains an AP—and thus the definite article is used (37).



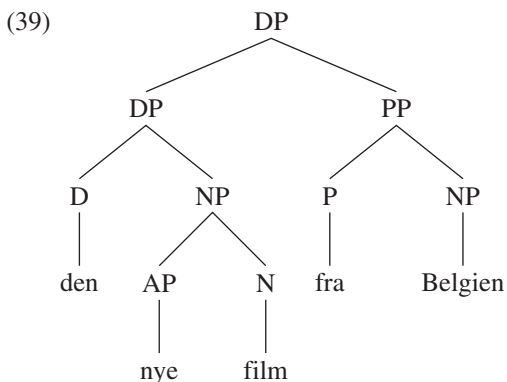
¹⁸ As discussed in LaCara 2019, this analysis is not, strictly speaking, compatible with the core Distributed Morphology assumptions that word building and categorization happens in the syntax. Under those assumptions, there is no such thing as a minimal N. Instead, there is a (minimal) root that serves as the complement of a categorizing *n* 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 (35a) 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 our earlier (Hankamer and Mikkelsen 2005, 2008, 2018) minimal N formulation here as a shorthand for the more articulated NumP analysis in LaCara 2019. For other, similarly articulated, DP analyses, see for example Aboh 2005, Cinque 2005, 2013, 2014, 2015a,b, 2018, Julien 2005, Alexiadou, Haegeman, and Stavrou 2007, Roehrs 2009, and Larson 2014.



As illustrated in (38), 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 (33)/(38).



If an AP is added, as in (34), the NP is no longer minimal and the definite article must be used.



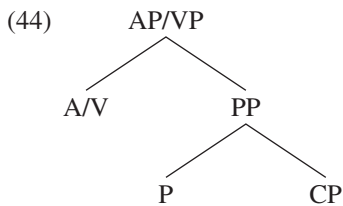
In the next section, we extend this line of analysis to the prepositional DC.

2.4 The Structure of Prepositional DCs

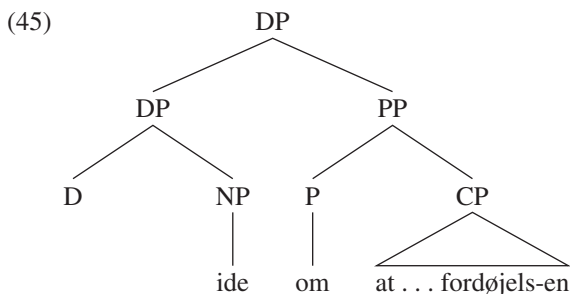
In addition to DP complements, Danish prepositions may take CP complements. Examples (40)–(43) show this for the prepositions *af* ‘of’, *med* ‘with’, *på* ‘on’, and *om* ‘about’.

- (40) Alle er kede [_{PP} **af** [_{CP} at hun er blevet fyret]].
 everyone is sorry of that she is become fired
 ‘Everyone is sorry that she was fired.’
- (41) Vi regner [_{PP} **med** [_{CP} at de kommer i næste uge]].
 we count with that they come in next week
 ‘We expect that they are coming next week.’
- (42) Jeg tror [_{PP} **på** [_{CP} at mine sange opbygger mod-et i folk]].
 I believe on that my songs up.build courage-DEF in people
 ‘I believe that my songs build courage in people.’
- (43) De er enige [_{PP} **om** [_{CP} at hun skal flytte]].
 they are in.agreement about that she must move
 ‘They all agree that she needs to move.’

These examples all involve the schematic structure in (44), 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 (45) for prepositional DCs.¹⁹



¹⁹ Most 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 2019 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 (8)). 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 pronominal 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 pronominal definiteness marking in the prepositional DC if an attributive adjective is included. This is correct, as shown in (46), where the adjective *faste* ‘regular’ is added to a prepositional DC. As (46a) shows, suffixal definiteness marking is now impossible; instead, definiteness is marked by the pronominal article, as in (46b).

- (46) a. **faste aftal-en med læg-en om at hun fornyer recept-en*
regular agreement-DEF with doctor-DEF about that she renews prescription-DEF
hver måned
each month
- b. *den faste aftale med læg-en om at hun fornyer recept-en*
DEF regular agreement with doctor-DEF about that she renews prescription-DEF
hver måned
each month
‘the regular agreement with the doctor that she renews the prescription each month’

As expected, this effect on definiteness marking holds whether or not the PP *med lægen* ‘with the doctor’ is present, and it does not affect the anaphoric semantics associated with the prepositional DC. The latter observation is important in that it demonstrates that it is not the choice of definiteness marking (suffixal vs. pronominal) that conditions anaphoric vs. referent-establishing interpretation. If it were, (46b) should be a referent-establishing 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 (46b) 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 (47).

- (47) *den ide at ingefær 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:

1. The order is D NP CP.
2. Definiteness is realized as an independent article, not as a suffix.
3. 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 (48).

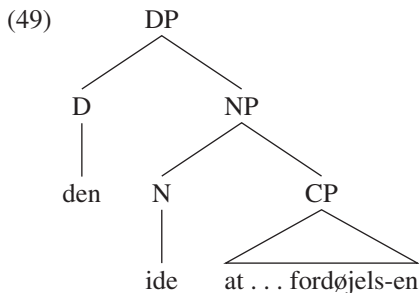
- (48) De fremlagde
they put.forth
a. den hypotese at ingefær gavner fordøjels-en.
the hypothesis that ginger aids digestion-DEF
b. *hypotese at ingefær gavner fordøjels-en.
hypothesis that ginger aids digestion-DEF

NP can only be present if D is present, as shown by the ungrammaticality of (48b). That is, D selects NP.

In section 3.1, we consider some candidate analyses for (47) 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 pronominal definiteness marking; and, in section 3.3.3, we extend the analysis to Danish DCs that have no N. In section 3.4, we discuss the distribution of the extra functional layer we posit in the bare DC, and, in section 3.5, we briefly discuss other constructions that plausibly involve a shell structure and head raising.

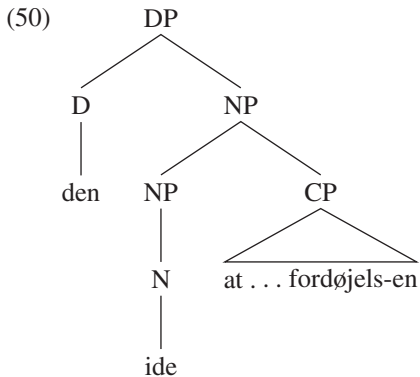
3.1 Some Analyses That Don't Work

Perhaps the most obvious analysis to consider is the one we characterized in section 1 as the "traditional" analysis, where the CP is a complement to N, as in (49).



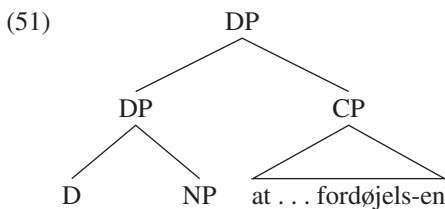
This will get the pieces in the right order (a) and will make the right predictions about definiteness marking (b), but leaves the selection of CP by D_[DEF] (c) mysterious.

For similar reasons, an analysis in which the CP is adjoined to NP, as in (50), 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 (51), will fail to get the definiteness marking right, in addition to leaving it mysterious how the D[DEF] can select CP.²⁰



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 (49) where the CP is a complement to N, and suggests (with varying degrees of explicitness) something like (50) or (51). Again, consider Stowell 1981:200:

Thus 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.

²⁰ Yet another approach would be to propose a ternary-branching structure, in which D takes an NP complement and a CP complement. This would get the word order right (by stipulation or by a presumed heaviness-to-the-right preference). It would allow D to select both NP and CP. But it would not account for the nature of the definiteness marking: D[DEF] would be a sister to a minimal NP, resulting in suffixal definiteness marking, but the bare DC invariably features prenominal definiteness marking.

Stowell does not provide any structural representation, so we have to guess what he has in mind when he says the relation between the N and the CP is one of “apposition.” He is clearly rejecting a structure like (49), so we assume he must have in mind something like (50). As we have shown, a structure like (50) cannot be maintained for Danish bare DCs, because there is no way to account for the observed selection between D and the CP.²¹ 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.

De Cuba (2017) follows Stowell (1981) in failing to be very explicit about the structure of DCs while repeating the assertion that the N and the CP corefer. Moulton (2015) does not assume that the N and the CP corefer, but does assume that they denote the same kind of thing and combine by Intensional Predicate Modification.²² 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 shown 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

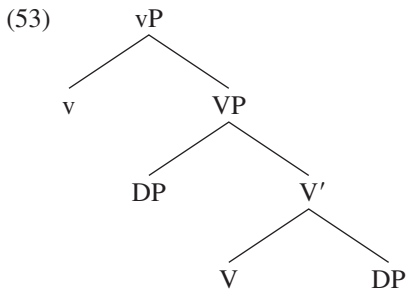
In the nearly workable analyses that we have rejected, the difficulty is the double selection: the D_[DEF] clearly selects the CP, since no other D permits a CP; at the same time, D also selects for NP (see (48)). Another place where such a problem appears is in the case of ditransitive verbs.

(52) 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 if it had two complements. A commonly accepted solution (following Larson 1988; see Harley and Miyagawa 2017 and references 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.

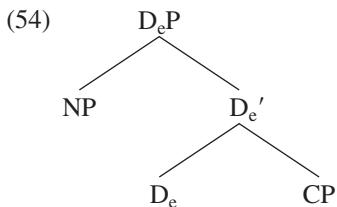
²¹ Of course, Stowell (1981) does not make a distinction between English constructions corresponding to Danish bare DCs and English constructions corresponding to Danish prepositional DCs, but the examples cited (p. 199) in connection with the discussion (*Andrea's guess that Bill was lying, John's claim 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) and de Cuba (2017)) say very similar things about examples that appear to correspond to Danish bare DCs.

²² Moulton (2015:311–313) offers an empirical argument, based on copular clauses, that the N and the CP have the same semantic type. 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.



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, 2014:407–480²³), 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.²⁴ Moreover, we propose to encode the fact that bare DCs are exclusively referent-establishing definites with a feature E on the selecting D head. We notate this D_e below.



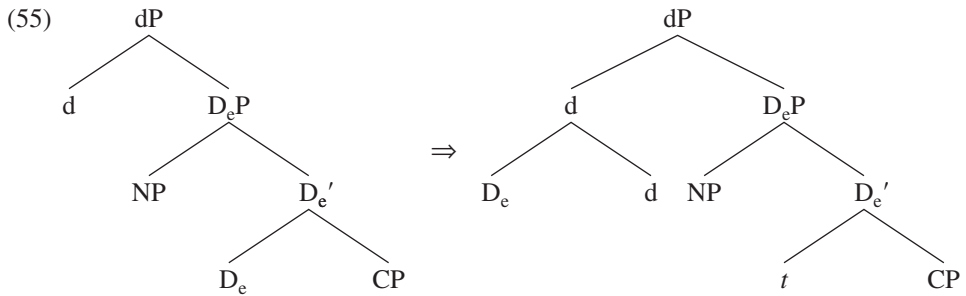
In such a structure, it is not at all mysterious why D_e can select for a CP complement and also an NP specifier. This structure is then assumed to be a complement to a functional head (call it d), to which D_e raises by head movement.²⁵

²³ Larson’s (2014) 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 articles are base-generated as the head of an 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’s Art-to-D movement analysis and with Larson’s theory of shell structure.

²⁴ 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.

²⁵ Two observations are in order here. First, this proposal may remind readers of a family of analyses of relative clauses, going back to Stockwell, Schachter, and Partee 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 justifications for the proposals are very different. So far as we are aware, the “head”-raising analyses of relative clauses do not rely for support on any selection relation holding between the D and the CP that is its supposed complement.

Second, given the structure proposed in (55), 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, at present we cannot. The Barss-Lasnik diagnostics all involve relations between DPs and we don’t have a similarly broad variety of diagnostics for relations between NPs and CPs.



In section 3.3, we discuss how the head-raising analysis accounts for the morphosyntactic, semantic, and pragmatic properties of the bare DC. In section 3.3.3, we provide further support for the head-raising analysis of the Danish bare DC from two related DC constructions, and in section 3.4, we discuss the status of the *d* head and its distribution in the language. In section 3.5, we consider other constructions that plausibly instantiate similar head-raising configurations, before turning to English DCs in section 4.

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_e to a higher head position, where it ends up to the left of its specifier as well as its complement.

Second, the realization of D_e as the prenominal article is predicted under this analysis because D_e and N are never in direct construction with each other, and thus D_e is never a sister of a minimal NP. Consider the Vocabulary items in (56), which are adapted from Hankamer and Mikkelsen 2005:104, (35).²⁶

- (56) a. $-\text{en} \leftrightarrow [\text{D}, \text{DEF}]$ if sister to a minimal N
 b. $\text{den} \leftrightarrow [\text{D}, \text{DEF}]$

D_e carries the features D, DEF, and E. It cannot be instantiated by (56a), because it is not sister to a minimal N. By the Subset Principle (Halle 1997), D_e can be instantiated by (56b), which matches a subset of its features.

Third, the selection relations are also accounted for. D_e 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 20 lacks. These considerations in fact count as an additional argument against any analysis that involves combining D + NP first.

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 that the bare DC allows all proposi-

²⁶ The Vocabulary items in Hankamer and Mikkelsen 2005 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 (56).

tional Ns, whereas the prepositional DC allows only representational Ns (see section 2.2); the second is that bare DCs involve referent-establishing definiteness, whereas the prepositional DC involves anaphoric 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 toward, 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 a result, it allows for any propositional noun, including nonrepresentational ones.

Turning to definiteness, we have proposed to encode referent-establishing definiteness with an ϵ 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 referent-establishing definite determiner that occurs in the bare DC. In particular, the referent-establishing article expresses pure uniqueness, making it uniquely suitable to combine with a CP that expresses a unique proposition.²⁷

3.3.3 Bare DCs with No N Further support for our head-raising analysis of bare DCs comes from the constructions illustrated in (57) and (58). (Julien (2005:95, 96) cites corresponding Norwegian data.)

²⁷ A reviewer asks why an anaphoric D could not select a proposition, pointing out that there exist anaphoric proposition-denoting pronouns, as in (i)–(ii).

- (i) They told us that the war was over, but we didn't believe it.
- (ii) It wasn't obvious at first, but they had completely surrounded us.

So it is possible to anaphorically refer to a proposition.

This is true, but we do not believe that the existence of pronouns that anaphorically refer to propositions is counterevidence to our claim that an anaphoric D cannot combine with a CP. Anaphoric definites are called “anaphoric” (originally by Hawkins (1978)), but it is the whole DP that is anaphoric, not the D. Our assumption is that an anaphoric D cannot combine directly with any expression that denotes a unique referent because the semantic function of an anaphoric D is precisely to signal that the intended referent is the situationally most prominent member of the set denoted by its complement. By this reasoning, an anaphoric D cannot combine with a CP because CPs do not denote the right kind of object.

This effect can also be observed in a corner of the nominal domain in German. As Schwarz (2009) (following Hartmann 1980, 1982) has shown, “weak” definite determiners, which encode uniqueness, can contract with a preceding preposition, while “strong” ones, which encode anaphoricity, cannot.

- (iii) Er flug zum Mond / #zu dem Mond.
he flew to.the moon / to the moon
'He flew to the moon.'

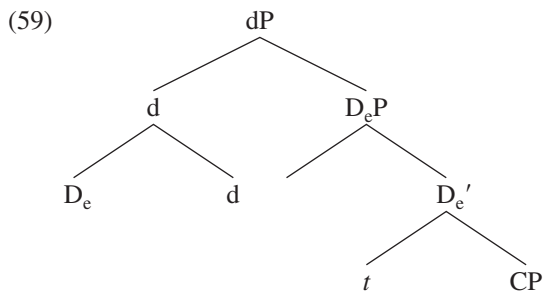
Zu dem Mond is decidedly weird in this case, unless there is more than one moon, and one of them has been recently mentioned. The case most parallel to the one we are concerned with concerns the use of definite determiners with names (“proper nouns”): *der Hans, die Grete*. Since names, when used as names, denote unique entities, we predict that the combination of a strong determiner with a name will be illicit. This turns out to be the case.

- (iv) Er sollte den Ball zum / #zu dem Hans schlagen.
he should the ball to.the / to the Hans hit
'He should have hit the ball to Hans.'

Of course, under various conditions names can turn into common nouns, and then the strong determiner becomes possible.

- (57) 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.’
- (58) 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 referent-establishing definites and not anaphoric. However, they lack a noun.²⁸ Instead, they have either nothing (57) or an adjective (58) between D and CP. We propose to extend our analysis of the bare DC to these structures as in (59) and (60), respectively.



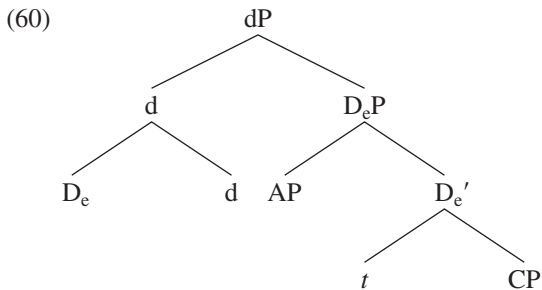
- (v) Ich schickte das Buch zu dem Hans, den du mir gestern vorgestellt hast.
 I sent the book to the Hans that you me yesterday introduced have
 ‘I sent the book to the Hans that you introduced to me yesterday.’

We did not find this constraint in the literature, but figured that it is a prediction that follows from our understanding of how the weak and strong definite articles work. Thanks to Armin Mester and Vera Lee-Schoenfeld, along with Dr. Google, for relevant judgments. Schwarz (2009:42) notes that “whenever the semantic content of the noun phrase description ensures uniqueness, the weak article is used,” citing cases such as noun phrases containing a superlative adjective, and nouns like ‘original’.

- (vi) a. Auf unserer Reise nach Tibet sind wir natürlich auch zum / #zu dem höchsten Berg
 on our trip to Tibet are we of.course also to.the / to the highest mountain
 der Welt gefahren.
 the.GEN world driven
 ‘On our trip to Tibet we of course went to visit the highest mountain of the world.’
- b. Man kann die Kopie des Gemäldes kaum vom / #von dem Original unterscheiden.
 one can the copy the.GEN painting barely from.the / from the original distinguish
 ‘One can barely distinguish the copy of the painting from the original.’
 (Schwarz 2009:42–43, (47a–b))

It seems clear that there is a definite determiner, the “strong” one in Schwarz’s terminology and the “anaphoric” one in ours, that is incompatible with a complement that denotes uniquely.

²⁸ Or it is possible that they contain a null noun; see Moulton 2017 for relevant discussion.



In (59), D_e 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_e and CP in (57). The structure in (60) is identical, except that an AP occupies the specifier of DP. Head raising of D_e to d results in the word order observed in (58): D A CP. The existence of these two constructions underscores our central claim that the primary relationship of the DC is that between D_e and CP.

A further indication of the tight relationship between D_e and CP in the bare DC, and the variations on it in (57) and (58), is that the CP is required and cannot be omitted.²⁹

- (61) a. Hun fremførte den påstand at alle var forsvundet på en gang.
 she forth.carried the claim that everyone was disappeared on one time
 ‘She made the claim that everyone has disappeared at once.’
 b. *Hun fremførte den påstand.
 she forth.carried the claim
 Intended: ‘She made the claim.’

(62) *Så sker der det. [compare with (57)]
 then happens EXPL the

(63) *Så sker der det mærkelige. [compare with (58)]
 then happens EXPL the strange

Neither of these nounless variants is possible with the prepositional DC.

(64) *[det om at alle forsvandt på en gang]
 the about that everyone disappeared on one time

(65) *[det mærkelige om at alle forsvandt på en gang]
 the strange about that everyone disappeared on one time

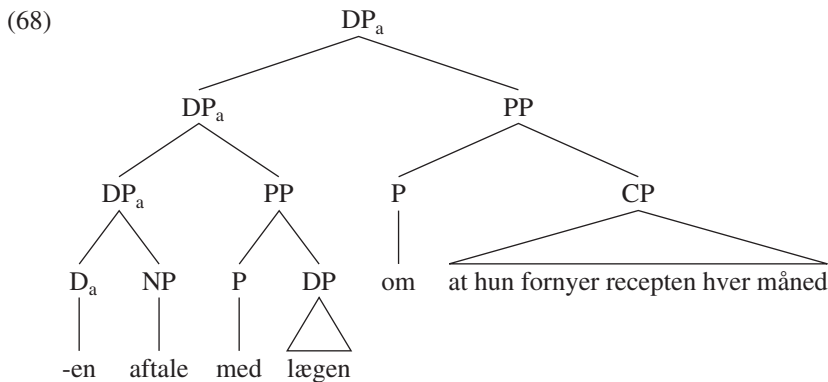
²⁹ (61b) is grammatical if *den* is stressed and interpreted as a demonstrative. The string *det mærkelige* in (63) can function as a well-formed DP under NP-ellipsis, but that interpretation is unavailable here because the expletive construction disallows an anaphoric definite as pivot.

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 their extended projection.

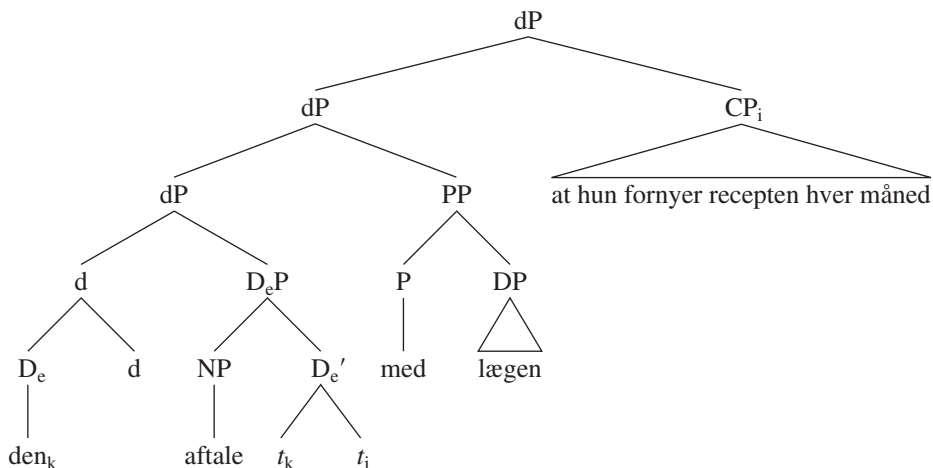
3.3.4 PPs and Extraposition The underlying structure we propose for the bare DC is substantially different from the one we propose for the prepositional DC: instead of NP being a complement to D, NP is a specifier to D_e , and instead of the (PP-encased) CP adjoining to DP, the CP is the complement of D_e . However, head raising of D_e 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.

- (66) aftal-en [med læg-en] om at hun fornyer recept-en hver måned
 agreement-DEF with doctor-DEF about that she renews prescription-DEF each month
 ‘the agreement with the doctor that she refills the prescription each month’
- (67) den aftale [med læg-en] at hun fornyer recept-en hver måned
 DEF agreement with doctor-DEF that she renews prescription-DEF each month
 ‘the agreement with the doctor that she 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 (Grosu and Thompson 1977:139ff., Dryer 1980:145–174, Moulton 2015:310, Schmidtke-Bode and Diessel 2017:e.g., 7–12). 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 (66), the observed order reflects the order of adjunction: [_{PP} P DP] adjoins before [_{PP} P CP], as in (68). In (67), the PP-before-CP order comes about through extraposition of the CP complement of D across the PP, as in (69). (We assume that adjunction and extraposition both target the highest nominal projection, which is DP in (68) and dP in (69).)



(69)



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 therefore does not affect the configuration of D and NP, which is what determines definiteness marking. Thus, in the prepositional DC, D_a 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_e is a sister to CP—and adjunction of a PP to DP, of course, does not change this fact. Consequently, D_e is realized as a prenominal article, the elsewhere case.

The signature semantic difference between the two types of DCs—prepositional DCs involving anaphoric definiteness and bare DCs involving referent-establishing definiteness—is also unaffected by the addition of the PP. Thus, (66) fits naturally in a sentential context like (70), where the prepositional DC is the complement of a factive verb, whereas (67) is felicitous with a verb of creation, as in (71). (See sections 2.1 and 3.3.2 for discussion of this semantic difference.)

- (70) Vi er glade for aftal-en med læg-en om at hun fornyer
 we are glad for agreement-DEF with doctor-DEF about that she renews
 recept-en hver måned.
 prescription-DEF each month
 ‘We are pleased with the agreement with the doctor that she refills the prescription
 each month.’
- (71) Vi lavede den aftale med læg-en at hun fornyer recept-en hver
 we made DEF agreement with doctor-DEF that she renews prescription-DEF each
 måned.
 month
 ‘We made the agreement with the doctor that she refills the prescription each month.’

If the two DCs are switched, as in (72) and (73), the resulting sentences are infelicitous.³⁰

(72) #Vi er glade for den aftale med læg-en at hun fornyer recept-en
we are glad for DEF agreement with doctor-DEF that she renews prescription-DEF
hver måned.
each month

(73) #Vi lavede aftal-en med læg-en om at hun fornyer recept-en
we made agreement-DEF with doctor-DEF about that she renews prescription-DEF
hver måned.
each month

The infelicity of (72) and (73) shows that the hypothesized link between syntax and semantics in the realm of DCs is a stable one that persists in the context of additional 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 referent-establishing definiteness, whereas a definite prepositional DC expresses anaphoric 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 PP-encased CP to extrapose. To establish the structural significance of this, we first need to consider extraposition of relative clauses.³¹ As is well known (since Ross 1967:1), a restrictive relative clause can occur in an extraposed position, as in (74)–(76).

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

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

(76) A gun went off which I had cleaned.

(Ross 1967:1, (1.2))

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

(77) 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.

(78) 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.

³⁰ As discussed for a similar example in footnote 11, (73) can be rescued by focus accent on the subject *vi* ‘we’.

³¹ For simplicity, we use English examples for illustration. The Danish facts are parallel.

- (79) 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 extrapositionality between restrictive relative clauses, presumably adjoined to NP, and nonrestrictive ones, presumably adjoined to DP.³² 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 (45). 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 (80)–(81).

- (80) De fremførte den påstand på mød-et at fyringer-ne var absolut
they advanced the claim at meeting-DEF that layoffs-DEF were absolutely
nødvendige.
necessary
'At the meeting they made the claim that the layoffs were absolutely necessary.'
- (81) *De benægtede påstand-en på mød-et om at fyringer-ne var absolut
they denied claim-DEF at meeting-DEF about that layoffs-DEF were absolutely
nødvendige.
necessary
Intended: 'At the meeting they denied the claim that the layoffs were absolutely necessary.'

Example (80) has a referent-establishing bare DC ('the claim that the layoffs were absolutely necessary') and the CP is extraposed across the PP dependent of the main verb ('at the meeting'). The ungrammaticality of (81) shows that the CP complement of an anaphoric prepositional DC cannot extrapose out of the prepositional DC.³³

3.4 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

³² We thank Jim McCloskey and Ivy Sichel for help with the literature on extraposition of relative clauses; see Cinque 2015c and Sichel 2018:365–371 for relevant discussion of extrapositionality of restrictive relative clauses.

³³ There is a reading of (81) where the PP *på mød-et* is a modifier of the N *påstand-en*.

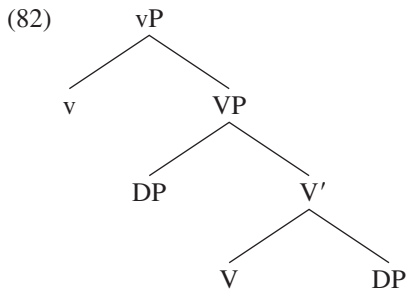
to a minimal N), contrary to fact. To our minds, a more attractive position is that *d* selects D_e , and therefore is only present in the bare DC, and invariably attracts D_e by head movement. In that sense, *d* is a defective functional head with a very limited distribution.³⁴ A reviewer poses a related question: why is referent-establishing *D* dyadic but anaphoric *D* is not? One answer would be that on Schwarz's (2009:135–138) analysis, the specifier of an anaphoric *D* is occupied by a referential index, and that would explain why anaphoric *D*s are never *overtly* dyadic. But the reviewer's deeper question appears to be why our little *d* never selects anything but D_e . This is exactly the question we are grappling with here. There might be a deeper answer, but in our present state of understanding we can only stipulate that relationship; we note, however, that this is exactly the kind of stipulation that strict subcategorization was invented for.³⁵

Another 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, Christensen, and Vikner 2017) posits a *c* head projected above CP, also with a very limited distribution.

3.5 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_e does with NP and CP.³⁶

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 DC.



³⁴ More specifically, it is a functional head in the sense of Cinque 2017:322: it provides a landing site for movement, but has no semantic or phonological content.

³⁵ The same reviewer asks whether we only see D_e with an overt specifier in the context of a CP complement. The answer is yes. This then raises the question whether Danish has another, nondyadic, D_e . We believe this is an analytic question: if we allow a nondyadic D_{def} that allows for referent-establishing as well as anaphoric readings of the DP it heads, then we do not need to posit a separate nondyadic D_e . If we do not allow for such a general definite *D*, then we do need to posit a separate nondyadic D_e .

³⁶ Several of these cases are also given a similar treatment in Larson 1991 (reprinted in Larson 2014).

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 verb construction.

Comparatives. In the comparative construction ((83), (84); see also (85), (86)), the comparative clause is selected by the comparative morpheme (*more* in (83), (84)), and therefore, as acknowledged for example by Kennedy and Merchant (2000:102), the comparative clause should be an argument of *more*, as should the AP/NP/AdvP in the construction.

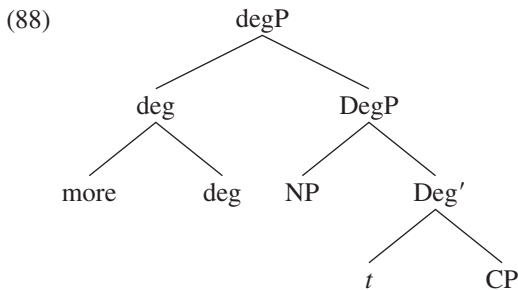
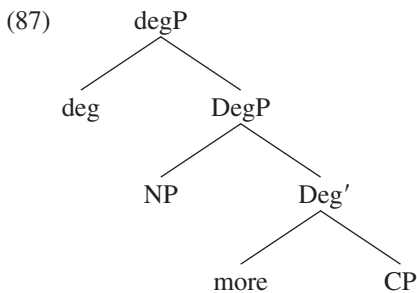
(83) The coat was *(more) expensive than I wanted it to be.

(84) {More/*The} cats than I could count were on the porch.

(85) The coat was less expensive than I wanted it to be.

(86) Sally is less afraid of goats than I am.

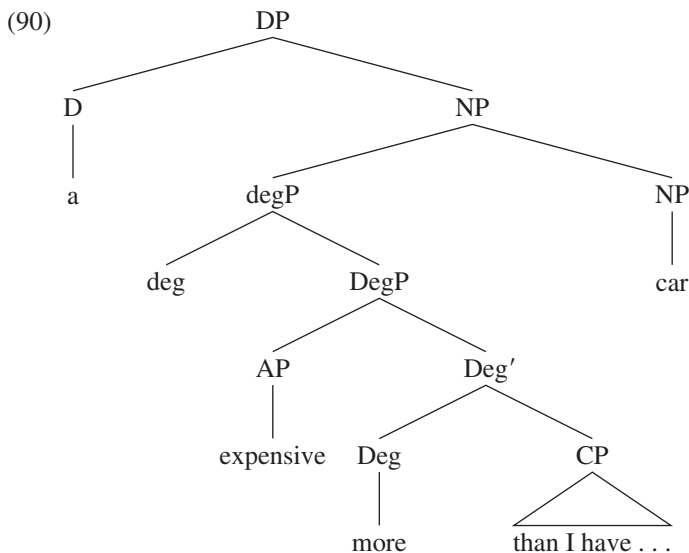
These requirements can be met if we assume that the Deg head *more*, like a ditransitive V, has its two arguments as specifier and complement in initial structure, as depicted in (87), and undergoes head raising to a higher head position (deg) as in (88).



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 (89),

(89) She has a more expensive car than I do.

which, according to our assumptions, would have an initial structure like (90)



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.³⁷

As-comparatives. Like *more/less . . . than . . .* comparatives, the type of comparative construction exemplified in (91)–(92) is also bivalent.

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

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

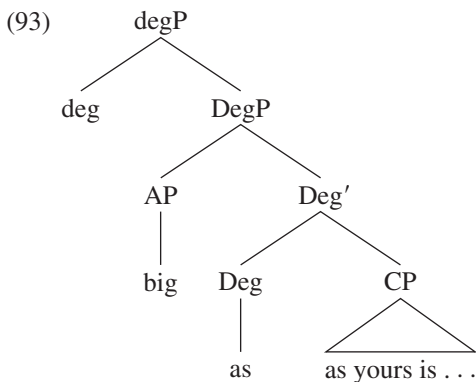
This leads to an analysis in which the first *as* is a Deg-like element, taking an AP specifier and a CP headed by *as* as a complement.

³⁷ Similar complexities arise in the other constructions considered in this section.

(i) as strong an argument as he could muster

(ii) too shitty a book to assign to a class

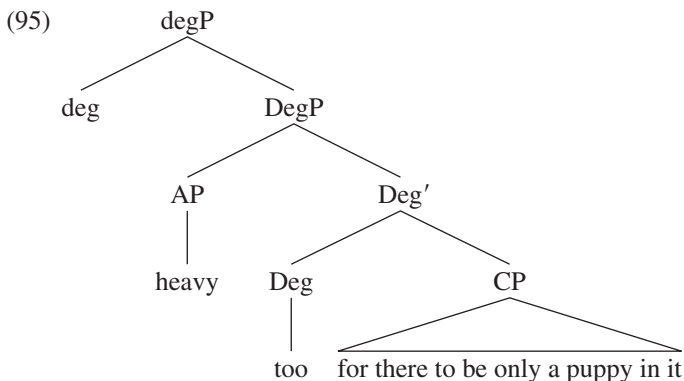
(iii) The man was so severely affected by hallucinations that we had to isolate him.



The too/enough-Adj construction. 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.

(94) *(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 (1991:52)) that its complement is a CP, and the AP is a specifier.



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.

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

(97) 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.³⁸

(98) That dog is mean enough that I wouldn't want to be left alone with him.

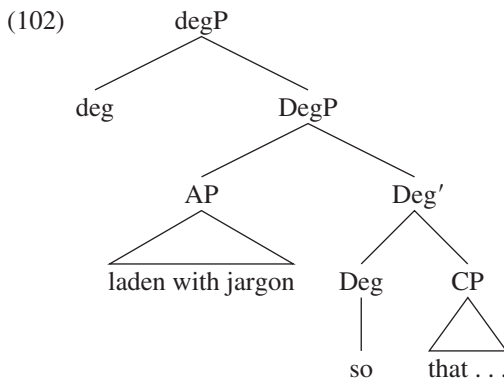
(99) The rock is heavy enough to hold the lid on the can even on a windy day.

The so . . . that . . . -construction. The Deg *so* takes an AP and a CP argument.³⁹

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

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

(101), of course, exhibits extraposition of the CP not only out of the DegP (as discussed in connection with (90)), 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 (102).



The such . . . that . . . -construction. Consider (103) and (104).

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

(104) 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 (105)—

³⁸ 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.

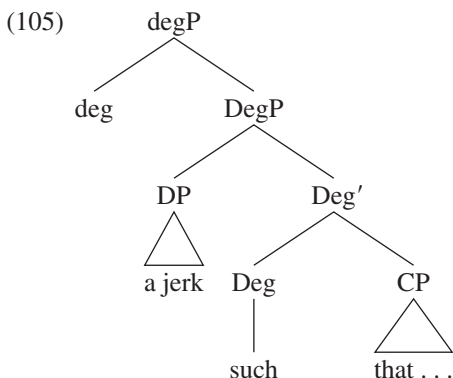
(The order *fond of chocolates enough . . .* does not sound ungrammatical, but (i) is clearly preferred.)

³⁹ 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.

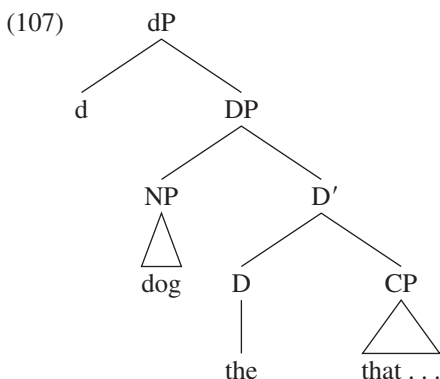
The dependency relation between the degree element *so* and the *that*-CP has been remarked upon in various previous works: see Higgins 1970, Selkirk 1970, Liberman 1974, Rouvret 1978, and Guéron and May 1984.



though we 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.

Relative clauses. Finally, under modern versions of Smith’s (1964) “Article-S” analysis of restrictive relative clauses, these too involve a bivalent D (Finer 1998, Larson and LaTerza 2017).

(106) the dog that I saw on the beach



As in the bare DC, D raises to d, yielding the observed order D NP CP.

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, that selection is an indication of argument structure, we are led to an analysis involving a Larsonian functional shell. The similarity among all these constructions, that a superficially initial head seems to select two phrases that follow it, is the characteristic they share with the Danish bare DC construction. We thus suggest that the solution to one is the solution to all.⁴⁰

⁴⁰ Someone braver than us might consider trying to extend this line of analysis to the notorious *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 anaphoric and referent-establishing 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) argues persuasively that there is a semantic difference to be made between anaphoric and referent-establishing definites in English, but does not suggest a corresponding syntactic difference. None of the authors we cited in section 3.1 who propose analyses of DC constructions distinguish between anaphoric and referent-establishing DCs. In this section, we consider 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 will be more subtle. We believe, however, that there are some indications of a duality of structure.

The examples in (108) show that English has both referent-establishing and anaphoric DCs (Hawkins 1978). Example (108a) involves a referent-establishing DC, whereas (108b) involves an anaphoric DC.⁴¹

- (108) a. We hereby make the pledge that we will refrain from doing syntax.
b. We broke the pledge that we would refrain from doing syntax.

An anaphoric DC can have a possessor, while a referent-establishing DC cannot.

- (109) a. *I hereby make Sue's claim that her pig can fly.
b. We denied Sue's claim that her pig could fly.

The two types of DC also differ in whether they can be indefinite. Referent-establishing DCs can be either definite or indefinite, while anaphoric DCs can only be definite (see Hawkins 1978: 143).

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

An anaphoric DC can be headed by a demonstrative, while a referent-establishing DC cannot.

- (111) a. *I hereby make that allegation that they cheated on the exam.
b. We resented that allegation that they cheated on the exam.

Finally, definite anaphoric DCs can be plural, but definite referent-establishing DCs cannot.

⁴¹ We have used an explicit performative in (108a) to make sure that it involves a referent-establishing DC. The verb *make* alone is not a perfect diagnostic for a referent-establishing definite, since such a verb is also compatible with an anaphoric definite, as (i) clearly shows.

(i) Pavlov was only 32 when he made his famous discovery that bells can cause dogs to salivate.

A verb like *deny* or *resent*, on the other hand, cannot have a referent-establishing DC as its complement; the complement to such a verb, if definite, must be anaphoric. (Thanks to a reviewer for bringing this to our attention.)

- (112) a. *I hereby make the allegations that they were cheating.
b. I resented the allegations that they were cheating.

Note that the limitations that distinguish referent-establishing DCs in English (cannot be possessed, demonstrative, or plural) correspond exactly to the properties of the bare DC established in section 2. The limitation on anaphoric DCs (that they cannot be indefinite) follows directly from their anaphoricity. The fact that referent-establishing DCs can be either definite or indefinite is also mirrored in Danish: bare DCs are always referent-establishing (and of course always definite), but there are also indefinite referent-establishing DCs (see (8)).

Our analysis 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_e . 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_e 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 (1978).

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

The first argument is based on facts of extraposition. In section 3.3.4, we noted that Danish DCs of the two types exhibit different extraposition 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 extraposition to show up in English DCs parallel to that observed for Danish. Here are the literal translations of examples (80)–(81) into English:

- (113) They made the claim at the meeting that the layoffs were absolutely necessary.
(114) ??They denied the claim at the meeting that the layoffs were absolutely necessary.

Some speakers we have consulted say that (114) is grammatical, but a majority judge it less acceptable than (113). A possible problem with (114) 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 we have consulted reject (116) than (114).

- (115) They made the claim emphatically that the layoffs were absolutely necessary.
(116) ??They denied the claim resolutely that the layoffs were absolutely necessary.

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

- (117) a. The claim was advanced that unicorns once existed.
b. ??The claim was refuted that unicorns once existed.

- (118) a. Did the suspicion arise that you stole the money?
b. ??Did the allegation disturb you that you stole the money?

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

- (119) a. Sue's proposal that we raise some pigs was rejected.
b. ??Sue's proposal was rejected that we raise some pigs.

We conclude that there is a difference in extrapositionability, 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 that we can make sense of if we assume that they have a similar structure.⁴²

The second argument relates to a difference in extractability out of referent-establishing and anaphoric DCs. A reviewer has drawn our attention to the fact that it is in general possible to extract an element from a referent-establishing DC, but not from an anaphoric DC.

- (120) This is a hypothesis which he made the claim that he had formulated himself on the basis of his earlier work.

- (121) *This is a hypothesis which he resented the claim that he did not formulate himself.

Ross (1967:139) observes that there is a difference in extraction possibilities in examples like (122)–(124).

- (122) The money which I am making the claim that the company squandered amounts to \$400,000.
(123) *The money which I am discussing the claim that the company squandered amounts to \$400,000.
(124) *The money which I am discussing Sarah's claim that the company squandered amounts to \$400,000.

Ross is interested in these examples because (122) appears to be a counterexample to the Complex NP Constraint as he formulates it. Without proposing a definite solution, he suggests some kind of reanalysis relating *make the claim* to the verb *claim*. This puzzle is briefly touched on by Davies and Dubinsky (2003:34), who attribute the transparency to extraction in examples like (122) to a process of Abstract Noun Incorporation inspired by a proposal developed in Baker 1988. Briefly, Davies and Dubinsky's Abstract Noun Incorporation is a process incorporating an

⁴² A reviewer points out a possible confound to our argument that the contrasts in (117)–(119) have a structural basis. It has been observed that extraposition out of definite subjects is generally restricted (see, e.g., Wittenburg 1987, Huck and Na 1990, É. Kiss 1996, Maynell 2008). This restriction would account for the infelicity of (117b), (118b), and (119b) without appeal to the base position of the extraposed CP. The question then becomes why extraposition *is* possible in (113), (115), and (117a). As far as we can tell, none of the accounts of the definiteness restriction, and exceptions to it, that have been offered in the literature (Guéron 1980, Wittenburg 1987, Huck and Na 1990, É. Kiss 1996, Maynell 2008, S. Y. Lee 2012, Reeve and Hicks 2017) explain the contrasts we observe here.

N (at LF) with a V when the following conditions are met: (a) the head N is a result nominal; (b) the result nominal is the complement of a causative verb semantically linked to the denoted result; and (c) the subject of the verb controls the agentive subject of the result nominal. Thus, in (125) *start* is a causative verb that results in the noun *rumor* and the subject *Kerry* controls the PRO agent of *rumor*; Abstract Noun Incorporation can therefore take place and (by Baker's (1988:64) Government Transparency Corollary) the DP becomes transparent to extraction.⁴³

(125) Who did Kerry start the rumor that Kelsey is fond of?

(126) *Who did Kerry hear the rumor that Kelsey is fond of?

Some details of the analysis are unclear to us, such as how the determiner is prevented from being a demonstrative or possessive, which would of course spoil things.

(127) *Who did Kerry start her rumor that Kelsey is fond of?

(128) *Who did Kerry start that rumor that Kelsey is fond of?

However, note that, with some fine-tuning to get these facts right, the restrictions on Abstract Noun Incorporation effectively serve to pick out referent-establishing DCs. Now note that if we assume that English, like Danish, has different structures for the referent-establishing DC and the anaphoric DC, with the CP of the referent-establishing DC originating as a complement of D and the CP of the anaphoric DC adjoined to DP, the difference in extraction possibilities can be attributed to the different structural positions of the CPs. The CP in an anaphoric DC is an adjunct and would be expected to be an island for extraction, while the CP in a referent-establishing DC is a complement.

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.⁴⁴

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 complements to N or D, but always adjoined to DP (Hankamer

⁴³ The Government Transparency Corollary: "A lexical category which has an item incorporated into it governs everything which the incorporated item governed in its original structural position" (Baker 1988:64).

⁴⁴ We leave aside the potentially interesting question whether the English anaphoric DC contains a silent P.

and Mikkelsen 2005:111–113, 118, 2008:326–327, 2018:65–66, Julien 2005:67–69). The present article thus adds to the growing body of evidence that PPs are always peripheral in the DP (as argued extensively in Adger 2012).

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 (D. E. Lee 1952, Haugen 1953, Hockett 1955, Burton-Roberts 1975, Meyer 1989, De Vries 2008:51–52, Acuña-Fariña 2009, Lekakou and Szendrői 2012), 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 seem 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 (see, 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]]]]; rather, it has the structure [[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.

(129) digter-en Burns
poet-DEF Burns
‘the poet Burns’

(130) tall-et syv
number-DEF seven
‘the number seven’

(131) 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] Name], and not [D [N Name]]. So the scholars who want to assimilate the structure of DCs to that of nominal close apposition may well be right, but the structure has to be [[D N] CP], and not [D [N CP]].

In section 1, we discussed the insight expressed by Stowell (1981) and others that the relation between an N and the CP in a DC construction is semantically different from the relation between the corresponding V and a CP in a V+CP combination. Stowell suggests 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 coarguments of a functional head that simply denotes referent-establishing definiteness (and, being functional, does not assign any θ -roles either). We suppose that the semantic relation between the coarguments of this head is much like the semantic relation between coarguments of the copula, that is, some sort of equivalence, 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, that is, the same kind of relation that holds between a DP and an adjoined nonrestrictive relative clause. This too can be loosely seen as a kind of “apposition” (the nonclose kind).

Our analysis provides an answer to the question why D_e is the only D that can participate in a bare DC construction, and correlates that structure with the semantic properties identified by Hawkins (1978) as “referent-establishing.” 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 3.5, 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.

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