

# Morpho-Semantic Mismatches, Structural Economy, and Licensing\*

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September 15, 2009

In agreement and concord phenomena, an element that is associated with a certain structural position as far as syntax and semantics are concerned is expressed morphologically in a different position. In the Danish example in (1), definiteness, which is presumably related to  $D$ , is reflected by a final  $-e$  on the two adjectives below it.

- (1) a. en stor gammel hest  
INDEF big old horse  
'a big old horse'  
b. den store gamle hest  
DEF big old horse  
'the big old horse'

Such mismatches between syntax/semantics and morphology can be captured in terms of feature spreading and realization: a syntactically/semantically contentful element  $S$  spreads a feature  $F_S$  onto one or more elements in a certain domain; each instance of  $F_S$  is realized by an instance of a syntactically/semantically vacuous element  $R$ .<sup>1</sup> I will refer to the contentful elements as *spreaders* and to the vacuous elements that realize them as *realizers*. In the example above, we might say that definite  $D$  is a spreader, that a feature  $F_{DEF}$  is spread onto each of the two adjectives, and each  $F_{DEF}$  is realized by an instance of the realizer  $-e$ .<sup>2</sup> As a rule, a spreader will appear exactly once within a domain, usually where its syntactic/semantic contribution is made (though it can sometimes be phonologically null, and it can be dislocated, subject to the usual constraints on movement). A realizer, on the other hand, can appear several

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\*Thanks go to Marta Abrusan, Adam Albright, Artemis Alexiadou, Asaf Bachrach, Jonathan Bobaljik, Michel Degraff, David Embick, Justin Fitzpatrick, Danny Fox, Tova Friedman, Morris Halle, Heidi Harley, Irene Heim, Sabine Iatridou, Michael Kenstowicz, Ivona Kučerová, Thomas Leu, Victor Manfredi, Alec Marantz, Andrew Nevins, Doris Penka, David Pesetsky, Dorian Roehrs, Erik Schoorlemmer, Raj Singh, Giorgos Spathas, Donca Steriade, Michael Wagner, Draga Zec, and the audiences at MIT Ling-Lunch and at Queen Mary, University of London. I thank Michael Fortescue, Kim Grubert, Line Mikkelsen, Jan Rijkhoff, and Torben Thrane for helping me with the Danish data; Artemis Alexiadou, Sabine Iatridou, and Giorgos Spathas for helping me with the Greek data; and María Ágústisdóttir, Margrét Bjarnadóttir, Jól Friðriksson, and Lýður Thorgeirsson for helping me with the Icelandic data. All remaining errors are my own.

<sup>1</sup>See Matushansky (2008) and Pesetsky (2007) for recent accounts of Russian case marking along these lines.

<sup>2</sup>Below I will argue that  $F_{DEF}$  also appears on the noun, though it is not morphologically realized there.

times within a domain (in examples like (1b) above, there will be as many instances of *-e* as there are adjectives).

My focus in this paper is on certain elements that participate in mismatches but do not fall neatly into either category. On the one hand, these elements pattern with spreaders: they tend to occur once within a domain, and they can appear to move. On the other hand, they pattern with realizers: they can occur lower in the structure than is expected, and they can have multiple distinct instances. I will refer to these elements as *licensors*, and my goal is to characterize their distribution, though I will not try to derive it from deeper principles. I will claim that licensors appear in positions that allow them to c-command instances of features. In section 1 below I will suggest that *-en* in the Danish *den* is a licensor for  $F_{DEF}$ . In example (1b), this single occurrence of *-en* will license all the occurrences of  $F_{DEF}$  within the noun phrase. It will also be possible for multiple occurrences of a licensor to appear within a single domain. Finally, I will argue that the distribution of licensors is subject to a condition of *structural economy*: no more instances of a licensor can be used than are required to license the features within the domain. I will refer to my proposal, in which spreaders, realizers, and licensors all play a role, as the SRL approach. I will try to show that, for various distributional patterns, SRL provides a better account than licensor-free alternatives.

I will start, in section 1, by looking at an SRL account of interactions of definiteness marking and modification within the Danish noun phrase and comparing it with other, perhaps more obvious accounts that have been proposed in the literature. Further support will come from the ability of the SRL account of definiteness marking to handle the seemingly very different pattern of gender marking in Danish, discussed in section 2. Whereas licensor-free approaches require non-trivial stipulations in order to accommodate the facts discussed in the literature, SRL captures these patterns with little or no modification, making new predictions along the way. These predictions extend beyond Danish, leading us, in section 3, to a straightforward (and to my knowledge novel) account of the complex paradigm of number, gender, case, and definiteness marking in Icelandic in terms of a change in the labeling of a single node within the Danish noun phrase. Finally, in section 4, I will look at Modern Greek, a language that has a highly flexible word order within the noun phrase, allowing us to compare the predictions of SRL to those of alternative accounts on data in which one factor is made arbitrarily complex while everything else is kept fixed. I will try to show that when the relevant tests are constructed, the predictions of SRL are borne out.

## 1 Definiteness in Danish

### 1.1 The basic pattern

Like most Scandinavian languages, Danish can mark definiteness either with a nominal suffix or with an independent, pre-nominal form.<sup>3</sup> The nominal suffix is *-en* in the

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<sup>3</sup>The pre-nominal form is often referred to as the definite article, which may suggest a treatment in terms of a spreader with the semantics of definiteness. If the current proposal is right, however, both forms of definiteness marking are licensors, and their association with the semantics of definiteness is indirect.

common gender and *-et* in the neuter. The pre-nominal form is *den* in the common gender and *det* in the neuter.<sup>4</sup>

The choice of suffix or pre-nominal form is not free. At a first approximation, the generalization is this:<sup>5</sup>

- (2) Basic generalization: the pre-nominal marker is required if the noun is modified by an adjective and is disallowed with unmodified nouns.

The following examples, from Hankamer and Mikkelsen (2005, pp. 87–88), illustrate the generalization:

- (3) Unmodified *N*: obligatory suffix
  - a. hest-en  
horse-DEF  
'the horse'
  - b. \*den hest  
DEF horse
- (4) Adjectival modification: obligatory pre-nominal marker
  - a. \*gamle hest-en  
old horse-DEF
  - b. den gamle hest  
DEF old horse  
'the old horse'

Most of the literature on this pattern has focused on the dependencies between the two definiteness markers, *-en* and *den*, and the rest of the phrase. This will be a good place to start our discussion of licensors, and I will get to that in a moment. Before that, note that we can already see the less controversial function elements, which I referred to as spreaders and realizers. Spreaders are the function elements that make a syntactic/semantic contribution. In our case, the relevant spreader is the definiteness head, the denotation of which takes the denotation of the whole noun phrase as its argument. We can imagine this spreader as a covert head that attaches as sister to the noun phrase.<sup>6</sup> The main thing that spreaders do, other than contribute to the semantics,

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<sup>4</sup>The distinction between the two genders, the common gender and the neuter, will play an important role later, but for now I will mostly ignore it and use the common gender wherever possible.

<sup>5</sup>For the moment, I will focus exclusively on adjectives in describing the Danish pattern of definiteness marking. As discussed at length by Hankamer and Mikkelsen (2005), PPs and relative clauses interact with definiteness marking in rather subtle ways, raising challenges for many familiar accounts. We will get back to this point in section 1.4, where we will see that the current proposal generalizes straightforwardly to handle PPs and relative clauses and correctly predicts their interaction.

I should also mention that, as has often been observed, the pre-nominal forms *den* and *det* can be used not only for definiteness but also as demonstratives. In their demonstrative use, prosodically marked by stress, the following noun can be unmodified. Generalization (2), then, is about the use of *den* and *det* for definiteness and not as demonstratives.

<sup>6</sup>Alternatively, one can avoid the idea of a definiteness head and take a syncategorematic approach, as proposed by Carlson (1983), where the distribution of the definiteness-related elements within the noun phrase is related directly to the operation of interpreting the noun phrase as definite. If the current proposal is correct, though, the syncategorematic version will not determine the distribution of *-en* directly but through

is spread features on elements in their domain, which can then be expressed by the other kind of function element, which I referred to as *realizer* above. In our case we will talk about a definiteness feature  $F_{DEF}$ . A realizer for this feature is the final *-e* on the attributive adjective in (4). This ending changes the adjective ‘old’ from its base form, *gammel*, which is found in singular indefinite noun phrases, to the form *gamle* that we saw. More generally, *-e* is added to most adjectives in Danish when appearing in definite or in plural noun phrases. When multiple adjectives modify the same noun, each will show up with its own *-e*:<sup>7</sup>

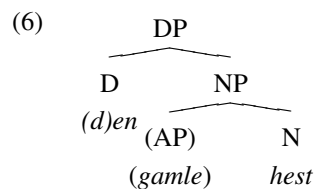
- (5) a. en stor gammel hest  
 1-CG big-CG old-CG horse  
 ‘a big old horse’  
 b. den stor-e gamle hest  
 DEF-CG big old horse  
 ‘a big old horse’

What we have, then, is a spreader attaching where its semantic contribution is made and spreading its features below, and realizers expressing instances of this feature on the adjectives. This much, I take it, is shared by all accounts of the basic pattern, either explicitly or implicitly.<sup>8</sup> What remains controversial is the distribution of *-en* and *den*. Let us take a very quick look at what licensor-free accounts in the literature have had to say about the distribution of these markers in (3) and (4), as well as at some problems that such accounts face. After that, in section 1.3, I will present the SRL account.

## 1.2 Sketches of licensor-free accounts

### 1.2.1 Licensor-free account I: the markers *-en* and *den* as spreaders

If definiteness markers in Danish are spreaders, considerations of compositionality would lead us to something like the following:<sup>9</sup>



something like licensors. As far as I can see, the argument below can be stated equally well with covert heads and with syncategorematic entries, and I am not aware of other considerations that would support one approach over the other. For purposes of presentation I will stick to the terminology of covert heads.

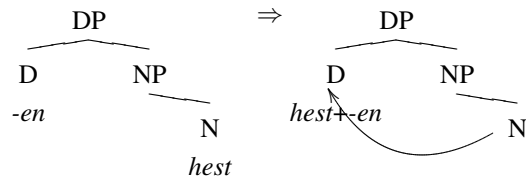
<sup>7</sup>I use 1 as a gloss for the common gender (CG) form of the indefinite article. This is also the form of the numeral ‘one’, orthographically written as *én*. I will have more to say about 1 when we discuss gender marking, in section 2 below.

<sup>8</sup>Minor details can change. For example, Börjars and Donohue (2000) treat the *-e* form as basic, analyzing what we referred to as the base form as the marked form expressing indefiniteness. For them, too, though, the relevant features are spread within the noun phrase. The difference is only in the particular features that are spread and in the choice of realizers.

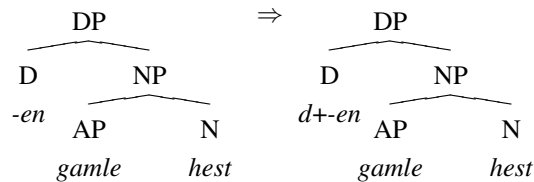
<sup>9</sup>The labeling of the non-terminal nodes can vary. Delsing (1993), for example, analyzed *NP* as a right specifier of the adjective. As far as compositionality is concerned, this choice does not make a difference.

This structure corresponds directly to the surface form of noun phrases with adjectival modification, such as *den gamle hest*. It is also perfectly compatible with the unmodified form *hest-en*: (6) represents hierarchical relations; compositionality considerations do not tell us whether *D* should appear to the left of *NP* or to its right, or whether *D* can form a word with *N*. However, to account for the dependency pattern in (3) and (4), most spreader accounts treat the linear order and affixation in *den gamle hest* (as accidentally drawn in (6)) as basic, attributing the post-nominal suffix configuration to a process that can only take place in the absence of an intervening adjective. This process can be the raising of *N* to *D*, as assumed by Delsing (1993) and Embick and Noyer (2001):

- (7) a. Unmodified *N* raises to *D*



- b. Intervening adjective blocks raising



Alternatively, as suggested by Embick and Marantz (2008), movement can go in the opposite direction, with *D* moving post-syntactically to *N* unless an adjective linearly intervenes.

As Hankamer and Mikkelsen (2005) discuss in detail, it is hard to use familiar kinds of movement as the basis for the dependencies between the markers in Danish. They also note that a movement account would encounter difficulties in accounting for certain lexical exceptions, as well as in capturing the different effects on definiteness marking that various post-nominal modifiers have, an issue that we will come back to below. We will encounter further complications for a spreader account in what follows. However, while I agree with Hankamer and Mikkelsen that movement does not offer an adequate characterization of the dependencies under discussion, I believe that it does offer a key ingredient that should be preserved by any account. This ingredient is the identification of the nominal suffix *-en* with the pre-nominal form *den* (or with part of it). The two forms seem to be related, but capturing this relatedness can be a difficult task for certain approaches, such as the realizer accounts that we will shortly review. For a movement account, relatedness is expected: it is the exact same *D* that sometimes attaches to *N* and sometimes appears in its base position, where it surfaces with an anchoring stem *d*. The nominal suffix is correctly predicted to be a subpart of the pre-nominal form.

### 1.2.2 Licensor-free account II: the markers *-en* and *den* as realizers

On a realizer account of the definiteness marker in Danish, *-en* and *den* are similar to the adjectival ending in that they all express a definiteness-related feature within the noun phrase. Since there is only one occurrence of *(d)en* but possibly many adjectival realizers, something about *(d)en* will have to be different. A familiar idea is that the adjectival endings express a feature that is related to *words* while *(d)en* expresses a feature that is related to whole *phrases*. For example, Börjars and Donohue (2000) propose that each of the adjectives in an indefinite noun phrase, as in (5a), has a *word-level* null affix realizing a *word-level* indefiniteness feature, while *(d)en* is a *phrasal affix* expressing a *phrasal* definiteness feature of the whole noun phrase. A similar idea is followed by Hankamer and Mikkelsen (2002), who treat *-en* as an affix that is attached by a lexical rule (their Rule D, p. 155) that turns a definite *N* into a *D*, effectively stating that *N* is a complete *NP* that cannot be further modified.<sup>10</sup>

To capture the generalization in (2), a natural idea for a realizer account of definiteness marking is that *-en* is the preferred form, used whenever possible, while *den* is the marked form, used only if *-en* is disallowed. This idea, which both Börjars and Donohue (2000) and Hankamer and Mikkelsen (2002) pursue, derives the badness of *\*den hest*, in (3) above, as the result of *blocking* by the preferred *hest-en*. Both accounts attribute the markedness of *den* with respect to *-en* to a preference for words over phrases. For Hankamer and Mikkelsen (2002), the preference is stated directly, following Poser (1992)'s proposal. For Börjars and Donohue (2000, p. 335), the preference is derived from an economy condition: *den* adds *syntactic* structure, leading to a violation of economy that is more severe than the violation that is caused by *-en*, which only adds *morphological* structure.

There are some aspects of the realizer approach that I think are correct. For example, the idea that the definiteness marker is not itself a spreader but rather an indirect reflection of definiteness, related to the features within the noun phrase. I also think that realizer accounts are right to distinguish between the local kind of realizers that we saw on the adjectives in (5) and the much less local behavior of *(d)en*. Finally, I agree with the realizer accounts about the significance to the distribution of *(d)en* of some structural markedness condition.

On the other hand, the realizer approach also gives rise to certain concerns, even if we restrict ourselves to the basic pattern above. First, the supposed distinction between words and phrases is suspect, and the very notion of a lexicon as a meaningful term has been shown to face nontrivial challenges (see Halle and Marantz, 1993, and especially Marantz, 1997 for discussion). It would be good to avoid relying on a distinction between words and phrases as a basis for specifying features, affixes, and economy conditions.<sup>11</sup>

In addition to the inherent difficulty of basing an account on a distinction between words and phrases, there are particular generalizations about the Danish pattern that

<sup>10</sup>The other definiteness marker, *den*, is assumed by Hankamer and Mikkelsen to appear in *D*, as sister to a definite *NP*. It can be thought of as another realizer of the definiteness feature or as the spreader itself.

<sup>11</sup>Of course, it would be even better if we could reverse the dependencies assumed by the realizer accounts and actually *derive* the intuitive notion of word from independently needed primitives. See Katzir (2008) for a proposal in this direction.

such an account obscures. For example, the form *den* properly contains the form *-en*, and it seems reasonable to try to analyze *den* as bimorphemic: *d* + *-en*. This decomposition is easily accomplished within a spreader approach, as we saw above. Within a realizer account, on the other hand, decomposition would mean that *-en* can sometimes express a phrasal feature (as in *d-en gamle hest*), raising the question of why it was not able to do so when attached to the noun (*\*gamle hest-en*). Similarly, the proper containment of *-en* in *den* suggests an economy condition that is simpler than the ones used in the proposals discussed above. If *den=d+-en*, we could appeal to a uniform condition that penalizes structure rather than appealing to distinct evaluations of morphologic complexity and syntactic complexity. Again, this is not available to an account that relies on *-en* being structurally different from *den*.<sup>12</sup>

### 1.3 Licensing

The SRL idea makes use of a two-step architecture. The first step, which I will refer to as GRAMMAR, generates structures and enforces the usual well-formedness conditions on phrase structure, selection, phonology, semantics, and so on. For example, the following aspects of the distribution of *-en* will be managed by GRAMMAR:<sup>13</sup>

- (8) a. *-en* is a suffix
- b. *-en* can attach to *N* and *d*, but not to *A*

GRAMMAR also takes care of spreading, realizing, and licensing. For the moment, we will focus on the following conditions:

- (9) Spreading: the head noun in a noun phrase and all modifying adjectives have the feature  $[F_{DEF}]$  iff the noun phrase is interpreted as definite
- (10) Realizing:  $F_{DEF}$  is realized as *-e* on all modifying adjectives (a different instance of *-e* for each instance of  $F_{DEF}$ )
- (11) Licensing: each instance of  $F_{DEF}$  is c-commanded by some instance of *-en* (possibly one *-en* for several instances of  $F_{DEF}$ )

<sup>12</sup>A related concern is the implementation of the two kinds of definiteness (or indefiniteness) features used to distinguish the unique occurrence of a definiteness marker within the phrase from the variable number of adjectival affixes. The proposals mentioned above do not provide any details about what they had in mind, and it seems to me that doing so would require complicating the machinery in various ways. In any case, I think it would be good for the account of *-en* and *den* and the account of adjectival endings to use the same features and the same spreading operation.

<sup>13</sup>I am assuming that *den* is bi-morphemic and that its decomposition is *den = d + en*. I don't know what *d* is, and I will treat it as a dummy element for purposes of exposition. More significantly, as (8b) makes clear, I am assuming that the *-en* in *den* is the same element as the nominal suffix *-en*. This morphological identity seems straightforward for the singular, common gender form, but it will get obscured once we move to the neuter gender, and even more so in the plural, where, as pointed out to me by Line Mikkelsen and others, the pre-nominal form is *de* and the post-nominal one is *-ne*. However, it seems to me that the idea of decomposing *de* into *d* and *-ne* is not entirely far-fetched, especially given the absence of *dn* as an onset cluster in Danish (see Basbøll, 2005 p. 206). Decomposition will be the least obvious for Icelandic, which we will study in detail in section 3. However, once we peel off a few phonological processes that are needed for Icelandic independently of our account, the form identity predicted by the current proposal will turn out to be complete.

In everything we have in GRAMMAR so far, only (11) is special to SRL. The rest, as mentioned above, is shared in one way or another by all current proposals that I am aware of.

The second step of the SRL architecture is ECONOMY, where outputs of GRAMMAR are evaluated, and those that have superfluous licensors (and maybe other dummy elements) are ruled out.<sup>14</sup>

- (12) ECONOMY: If  $S_1$  and  $S_2$  are identical except for licensors, and if  $S_1$  has strictly fewer licensors than  $S_2$ , then  $S_2$  is ungrammatical

Here is how it would work for the basic pattern in (3) and (4), repeated here:

- (13) Unmodified  $N$ : obligatory suffix
- a. hest-en  
horse-DEF  
'the horse'
  - b. \*den hest  
DEF horse
- (14) Adjectival modification: obligatory pre-nominal marker
- a. \*gamle hest-en  
old horse-DEF
  - b. den gamle hest  
DEF old horse  
'the old horse'

In (13) and (14) the noun phrase is definite, so  $N$  and all modifying  $A$  (when present) bear  $F_{DEF}$ . *-en* licenses the single instance of  $F_{DEF}$  in (13a), *hest-en*, and since there is no well-formed candidate that satisfies ECONOMY better, (13a) is grammatical.<sup>15</sup> Note that the bare form *hest* is more economical than *hest-en*, but it is ill-formed due to its unlicensed instance of  $F_{DEF}$ , and consequently it is not part of the candidate set evaluated by ECONOMY.

There are two possible explanations for why (13b), *\*den hest*, is ungrammatical. If  $d$  is a dummy element (another licensor?), the structure will be ruled out by ECONOMY: (13a), *hest-en*, is identical modulo dummy elements and is more economical. Or, if we can find a more meaningful role for  $d$  in the way modification is implemented, (13b) could be ruled out by GRAMMAR.

As for (14a), *\*gamle hest-en*, I would like to say that it is ruled out by GRAMMAR: *-en* is attached too low to c-command the adjective, leaving an instance of  $F_{DEF}$  unlicensed. (14b), *den gamle hest*, on the other hand, is grammatical: all the instances of  $F_{DEF}$  are licensed (details soon), and there is no well-formed candidate that is more economical. By ECONOMY (and the well-formedness of (14b)) we correctly predict that double-definiteness should be ungrammatical:<sup>16</sup>

<sup>14</sup>This two-step evaluation, where some operations can take place freely but are subject to an economy condition, bears obvious resemblance to the framework of Fox (2000).

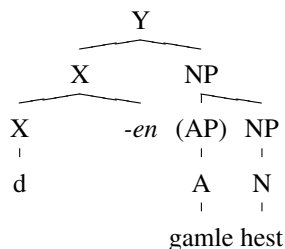
<sup>15</sup>I am currently assuming that spreading domains are the same as licensing domains. This makes sense here, but one could imagine things being different.

<sup>16</sup>In Danish. In Swedish, double definiteness is well-formed, which for the current proposal suggests that the pre-adjectival definiteness marker in Swedish does not have the noun within its licensing domain. I will

- (15) \*den gamle hest-en  
 DEF old horse-DEF

In order to actually derive the asymmetry between the bad (14a) and the good (14b) we should be more particular about our structural relations. What we need is to ensure that *-en* c-commands both *N* and *A* when attached to *d* but not when attached to *N*:

- (16) Good: *-en* on *d* c-commands both *A* and *N*

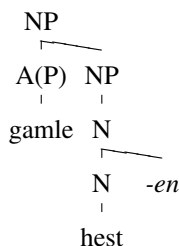


If c-command is defined in terms of first (branching) node up, (16) will not have the desired c-command relations. We need a looser notion of c-command, ensuring that something like the following holds:<sup>17</sup>

- (17) An affix c-commands everything its attachment site does

If (17) is guaranteed, we obtain the licensing of  $F_{DEF}$  on the adjective and the noun by the definite article. For the bad case, *N* must be too low for a sister of  $A(P)$ :<sup>18</sup>

- (18) Bad: post-nominal *-en* does not c-command the adjective



not discuss Swedish in this paper, but an account of multiple definiteness marking along these lines will be developed in detail in section 4. Note also that there are many other candidates that should be considered for the Danish pattern: *\*en-hest*, for example, and *\*gaml-en hest-en*, and so on. I assume that they are all ruled out by GRAMMAR.

<sup>17</sup>In Katzir (2008) I have tried to show that we can derive condition (17) if we follow May (1985) and Kayne (1994) in using a notion of c-command that is sensitive to the distinction between categories and segments (Chomsky, 1986). Here I will treat (17) as an arbitrary stipulation and simply assume that it holds.

<sup>18</sup>The dependence of our story on the particular way that  $A(P)$  attaches within the noun phrase might seem alarming. We have to make what looks like a completely arbitrary choice with respect to phrase-structure. I believe, though, that this is a fortunate state of affairs, and that treating this choice as arbitrary allows us to account for the superficially different distributional patterns of marking in Icelandic in terms of a variant of Danish in which this choice was made differently. I will discuss that in detail in section 3.

## 1.4 Other modifiers

The interaction of PPs and relative clauses with definiteness marking is different from that of adjectives. As discussed by Hankamer and Mikkelsen (2005) and Embick and Marantz (2008), these additional interactions pose difficulties for both spreader-based and realizer-based theories of definiteness marking. I will start by showing how SRL handles these interactions and then review the challenges for licensor-free accounts.

Prepositional phrases do not trigger the pre-nominal definiteness marker. In the absence of other modifiers within the definite noun phrase, only the nominal suffix is possible, and the PP appears after the suffixed noun:

- (19) PP in a definite noun phrase with no other modifiers (Hankamer and Mikkelsen, 2005:111)
- a. gris-en med blå pletter  
pig-DEF with blue spots  
'the pig with blue spots'
  - b. \*den gris med blå pletter  
DEF pig with blue spots

The current account has little of interest to say about (19). The spreading rule (9) said that  $F_{DEF}$  spreads onto the head noun and all modifying adjectives. Without further amendment, nothing within a PP will get  $F_{DEF}$  from the modified noun. This means that nothing within the PP would need licensing from the outside. In (19), only the noun will have  $F_{DEF}$  related to the definiteness of the whole noun phrase, and as before, this  $F_{DEF}$  can be licensed using nothing more than the post-nominal *-en*. More generally, we would expect that, all things being equal, PPs would be inert with respect to definiteness marking: the definiteness marking of a noun phrase with a PP should be exactly the same as that of a noun phrase without it. For example, we expect, correctly, that adding an adjective should trigger the use of the pre-nominal marker:

- (20) \*gamle gris-en med blå pletter  
old pig-DEF with blue spots
- (21) den gamle gris med blå pletter  
DEF old pig with blue spots

Non-restrictive relative clauses behave like PPs in not triggering the pre-nominal marker. For them, too, nothing has to be changed in the current proposal. Restrictive relative clauses (RRCs), on the other hand, are different from PPs (and from non-restrictive relative clauses) and similar to adjectives in triggering the pre-nominal marker, at least optionally:

- (22) (Examples from Hankamer and Mikkelsen, 2005:108)
- a. hest-en som vandt løb-et  
horse-DEF that won race-DEF  
'the horse, which won the race' (*non-restrictive, all speakers*)  
'the horse that won the race' (*restrictive, some speakers*)

- b. den hest som vandt løb-et  
 DEF horse that won race-DEF  
 ‘the horse that won the race’ (*restrictive, all speakers who get the definite DP reading*)

To account for definiteness marking with RRCs, then, we need to update our definition (9). We could say, for example, that  $F_{DEF}$  spreads onto the relative pronoun in an RRC. Here is the revised spreading rule:

- (23) Spreading (revised): the head noun in a noun phrase, all modifying adjectives, and the relative pronoun in a restrictive relative clause have the feature  $[F_{DEF}]$  iff the noun phrase is interpreted as definite

Other than this minor modification, nothing more needs to be said about relative clauses to get their interaction with definiteness. For example, an adjective should trigger the pre-nominal marker, regardless of whether the relative clause is restrictive or not. And since, on our account, PPs are inert and RRCs trigger the pre-nominal marker, we predict that a definite noun phrase with a PP and an RRC (and no other modifier) should have a pre-nominal marker. This is correct:

- (24) den gris med blå pletter som vi fik af nabo-en  
 DEF pig with blue spots that we got from neighbor-DEF  
 ‘the pig with blue spots that we got from the neighbor’ (Hankamer and Mikkelsen, 2005:112)

From the perspective of SRL, all these facts are unremarkable. Our earlier system, designed to account for the basic pattern, was able to accommodate these new interactions straightforwardly. The reason I have mentioned PPs and RRCs is that they have posed problems for all the other major approaches that I am aware of. It is not difficult to see why. For a realizer account, the choice between *-en* and *den* boils down to a distinction between words and phrases: *-en* goes on words; *den* goes on phrases. RRCs seem well-behaved in this respect. Like adjectives, they make the noun phrase too big to fit into a single word, so *den* is the marker of choice. PPs, on the other hand, are mysterious. I take it that the result of modifying a noun with a PP (or of adding a PP complement) is no more word-like than the result of modifying a noun with an adjective, and yet a PP appears with *-en* and not *den* (in the absence of other modifiers). Could one say that PPs attach so high that they do not really belong to the noun phrase? Hankamer and Mikkelsen (2005) suggest this, but the position of the PP between the noun and the RRC in (24) makes this proposal look unappealing.<sup>19</sup>

As for a spreader account, PPs and RRCs pull such an account in two opposite directions. In terms of structure, the attachment of a modifier PP is presumably not all that different from that of an attributive adjective. The inertness of PPs to definiteness, then, can be seen as further evidence against an analysis in terms of structural

<sup>19</sup>Hankamer and Mikkelsen try to account for these facts in terms of a raising analysis for relative clauses (as well as various assumptions about definiteness and phonological content of the elements participating in this construction). However, they do not provide independent evidence for this analysis, and as far as I have been able to establish, the relevant cases pattern with what has been analyzed as matching relative clauses and not with raising ones. For example, extraposed relative clauses, which have been argued by Hulsey and Sauerland (2006) to require an analysis in terms of matching rather than raising, allow *den*.

intervention, where *-en* on *D* and *N* below meet through movement unless there is more structure in the middle. In the space of currently available spreader accounts, this amounts to further evidence for an analysis in terms of linear intervention, like that of Embick and Marantz (2008). This makes it all the more surprising that a post-nominal RRC can also trigger *den*.<sup>20</sup>

## 1.5 Interim summary

We saw how introducing the notion of licensors allowed us to account for the basic pattern of definiteness marking in Danish. Stipulating a new kind of function element is hardly a pleasing move, but we noted that previous attempts to account for the pattern in a more conservative way have ended up making complex stipulations of their own even for the simple case of a single noun and a single adjective. Moving on to other elements within the noun phrase, we observed that the SRL account extended naturally to capture the interactions of those elements and their combinations with definiteness, while licensor-free accounts had a harder time. We now turn to another advantage of using licensors: the same mechanism that accounted for the definiteness pattern will allow us to account for a seemingly very different pattern related to gender marking, as well as for the interaction of the two patterns.

## 2 Gender in Danish

Our examples have so far used only the Common Gender (CG). As mentioned above, Danish has a second gender, the Neuter (Nt). The distinction between the two genders is expressed in several different places within the noun phrase.<sup>21</sup> Orthographically, the usual way to mark the distinction is by ending the Nt form in *t* instead of the final *n* (or  $\emptyset$ ) in the CG form:<sup>22</sup>

- (25)
- a. Definiteness suffix: *-en* for CG and *-et* for Nt
  - b. Pre-nominal definiteness marker: *den* for CG and *det* for Nt
  - c. Indefinite article: *en* for CG and *et* for Nt
  - d. I: *én* for CG and *ét* for Nt
  - e. Adjective:  $\emptyset$  for CG and *-t* for Nt

For now I will simply assume that *-t* is a marker of Nt, as suggested by (25e), and that the *et* forms in the other cases listed in (25) are the result of decomposition: *et* = *en* + *-t*. Earlier we mentioned that the pre-nominal CG definiteness marker *den* is already

<sup>20</sup>Embick and Marantz refer to Hankamer and Mikkelsen (2005)'s proposal, mentioned above, that what we have here is a raising relative clause.

<sup>21</sup>But only in the singular. The distinction is neutralized in plural noun phrases.

<sup>22</sup>Phonetically, all the *-t* endings are not alike, as has been pointed out to me on several occasions. I believe that these differences between the different surface forms make sense once certain facts about Danish phonology are taken into account, and that the orthography is quite faithful to the underlying morphological forms. I will not try to go into detail in this case, but a similar issue on a larger scale will soon emerge as a challenge to the account of Icelandic in section (3), and for that language I will try to show that a set of independently supported phonological processes account for all the apparent counterexamples.

decomposable into  $d + -en$ ; so for the Nt marker we will now have  $det = d + -et = d + -en + -t$ .

The following paradigm suggests that  $-t$  has the distributional properties of a licenser.

- (26) Indefinite: article and adjectives both marked for gender
- a. en stor gammel hest  
1-CG big-CG old-CG horse  
'a big old horse'
- b. et stor-t gammel-t hus  
1-Nt big-Nt old-Nt house  
'a big old house'
- (27) Definite: contrast neutralized on adjectives (but remains on the article)
- a. den store gamle hest  
DEF-CG big old horse  
'the big old horse'
- b. det store gamle hus  
DEF-Nt big old house  
'the big old house'

The Nt marker  $-t$  appears on every adjective in an indefinite Nt noun phrase but only on the definiteness marker  $-en$  within a definite Nt noun phrase. This seems mysterious if  $-t$  is a spreader. The pattern is no less puzzling if  $-t$  is a realizer, since whatever gender/number features spread onto the adjectives is presumably the same in the definite and the indefinite form.<sup>23</sup> If  $-t$  is a licenser, on the other hand, things are simpler. What we would say is that there is some feature, call it  $F_{Nt}$ , which, judging from the places in which  $-t$  appears in (26b), spreads onto the adjectives and  $en$  when the noun phrase is Nt.

- (28)  $en$  and all modifying  $A$  have  $[F_{Nt}]$  iff the noun is neuter singular

And just as  $-en$  licensed  $F_{DEF}$ , so does  $-t$  license  $F_{Nt}$ , and we can have either licenser on its own or stack  $-t$  on top of  $-en$  (though there is no stacking of  $-en$  on top of  $-t$ ):<sup>24</sup>

(29)

	—	<i>def</i>
—	∅	<i>-en</i>
<i>Neut</i>	<i>-t</i>	<i>-en+t</i>

<sup>23</sup>Börjars and Donohue (2000) offer an interesting proposal for dealing with the gender pattern within a realizer framework. They suggest that the  $-t$  form encodes indefiniteness, so that forms ending in  $-t$  are incompatible with a definite noun phrase, resulting in the emergence of the less fully specified  $-e$  form. This makes the appearance of  $-t$  on the definite article itself somewhat surprising. It also raises questions regarding the appearance of  $-t$  on predicative adjectives that are predicated on definite subjects: *hus-et er stort* 'the house is big'. Hankamer and Mikkelsen (2002, 2005) avoid the issue of gender marking altogether, and it is not obvious to me how the distributional facts can be made to fit with their account.

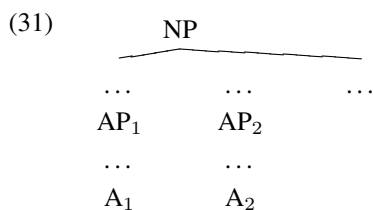
<sup>24</sup>Note that neither indefiniteness nor CG get marked.  $F_{DEF}$  and  $F_{Nt}$  appear to be privative features. I do not think this is a complete accident, but I will not pursue this matter here.

As for the pre-nominal definiteness marker, we have already decomposed *den* into *d + -en*, so for the Nt marker we will have the decomposition  $det = d + -et = d + -en + -t$ . We also said that *-en* would need to c-command the adjectives from its attachment point on *d* in the pre-nominal marker. We now predict that when *-t* attaches on top of *d + -en*, c-commanding *-en*, it will also c-command all the adjectives below. This will allow the *-t* on the pre-nominal marker to license every instance of  $F_{Nt}$  on the adjectives below, just as *-en* on the pre-nominal marker licenses every instance of  $F_{DEF}$  on those adjectives (as well as on the noun). Consequently, any additional *-t* would be unnecessary, and due to ECONOMY only the highest *-t*, the one on the pre-nominal definiteness marker, will survive.

- (30) a. det store hvide hus  
           DEF-t big white house  
           ‘the big white house’  
       b. \*det store hvid-t hus  
           DEF-t big white-t house  
       c. \*det stor-t hvide hus  
           DEF-t big-t white house  
       d. \*den stor-t hus  
           DEF big-t house

In other words, if we are right about our treatment of *-t* as a licenser, we are not surprised to see the adjectival instances of *-t* obligatorily disappearing when preceded by the pre-nominal definiteness marker, which in turn surfaces with a final *-t*.

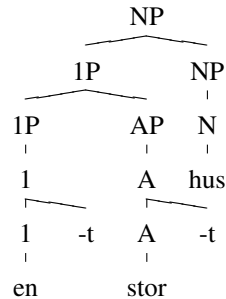
Turning our attention to the marking of Nt in the indefinite, as in (26b) above, we notice that each adjective bears its own *-t* marker. On our earlier assumptions, this can only mean that *-t* on one adjective does not c-command the other adjective. (If it did, one *-t* would be enough, and the second occurrence of *-t* would be ruled out by ECONOMY.) This, in turn, means that the *attachment site* of *-t* within one adjective does not c-command the other adjective. This would make sense if, as has often been suggested, the Danish adjective is not a head that takes the noun phrase as its sister but part of a phrase that attaches as an adjunct within the noun phrase.<sup>25</sup> The change of label from *A* to *AP* will ensure that a *-t* on *A* will only c-command elements that are lower than *AP*. In particular, it will not c-command adjectives other than its host. Any other adjective will require its own *-t* for licensing of  $F_{Nt}$ :



<sup>25</sup>See Svenonius (1994), Julien (2002), and Hankamer and Mikkelsen (2005) for discussion of the main considerations, all of which seem quite independent of our current concerns. I believe that considerations of wordhood support a similar conclusion (see Katzir, 2008 for discussion).

The appearance of *-t* also on the indefinite article 1 (*et*) suggests that 1, too, does not c-command the adjectives (and that the adjectives do not c-command 1). This means that the structural position of 1 is closer to that of adjectives than to the pre-nominal definiteness marker *den* (or *det*). Here is a possible structure where 1 attaches as an adjective:<sup>26</sup>

(32) A possible structure: *AP* adjoined to *1P*



This point of treating 1 as an adjective is somewhat more controversial than the analysis of adjectives as phrasal, but it can be justified independently of our proposal. The evidence comes from the ability of the definite article and of 1 to appear together in the same noun phrase. This happens, as has been pointed out to me by Torben Thrane, (p.c.), in certain contexts that correspond to a partitive reading for the noun phrase:<sup>27</sup>

(33) Den ene kop er forsvundet  
 DEF 1 cup is disappeared  
 ‘One of the cups has disappeared’

Significantly for our discussion of phrase structure, 1 in these cases appears between the definite article and the noun. Moreover, the 1 surfaces with what we referred to above as the realizer *-e*, just like an adjective under a definite article. This supports our choice of treating 1 as something similar to an adjective rather than as a counterpart of *den*. To summarize the last few steps, our earlier assumptions about licensing have pushed us in a particular direction with respect to phrase structure. This direction, in turn, allowed us to discover an interesting fact, for which we found independent support, about the position of so-called definite and indefinite articles within the Danish noun phrase.

And one final step. If the indefinite Nt article *et* is really an adjectival 1 with a licensor *-t*, and if this article can appear below the definiteness marker, we should expect that the *-t* on 1 would obligatorily disappear in such contexts, just as it disappeared on adjectives, and that instead of it we would find the realizer *-e*, again, in analogy with adjectives. This is correct:

(34) a. det ene hvide krus er forsvundet  
 DEF 1 white mug is disappeared

<sup>26</sup>This is not the only structure that allows 1P to adjoin to the noun phrase at a lower position than *den*. For example, we could have tried to adjoin both 1P and AP to NP. For our immediate purposes, I believe that the particular choice does not matter.

<sup>27</sup>I will ignore here the precise meaning of this construction and how it may arise compositionally.

‘One of the white mugs has disappeared’

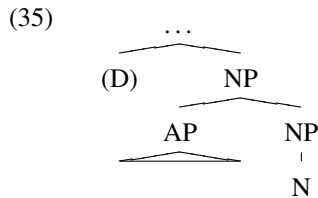
- b. \*det ete/et hvide krus er forsvundet  
DEF 1 white mug is disappeared
- c. \*det ene hvidt krus er forsvundet  
DEF 1 white mug is disappeared

### 3 Icelandic

#### 3.1 Changing the lower segment in the Danish *NP*

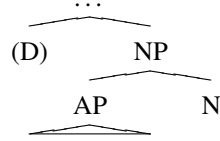
In the previous sections we examined two distributional patterns within the Danish noun phrase. One pattern had to do with the marking of definiteness and involved *-en* hopping; the other pattern had to do with the marking of the neuter singular and involved *-t* spreading. We noted that analyses that treat these markers as spreaders or realizers face a variety of challenges, and we saw how introducing a third kind of function element, which we referred to as licensors, allowed us to account for these patterns and their interactions. It also led us to some new facts about the attachment site and the internal structure of the definiteness marker 1. Indirectly, we developed an argument for structural competition in which simpler is better.

Enriching our ontology of function elements is not something to celebrate. It seems to me, though, that this is a reasonable price to pay for the ability to capture the marking patterns that we saw. As for our other assumptions, I tried to show that, with one exception, they all seem plausible enough quite independently of the current proposal. The exception had to do with the attachment of *AP* as an adjunct to *NP*:

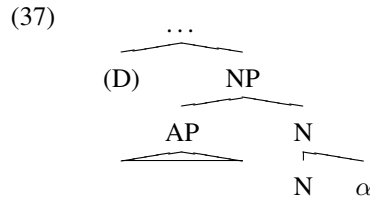


Nothing about the attachment of *AP* in (35) is particularly implausible (and in fact a similar structure has been suggested by Svenonius, 1993, though for different reasons and within a different theoretical setting). However, our only motivation for having this attachment site came from our need to prevent the post-nominal definiteness marker from c-commanding into the adjective. I can think of no general reason to expect this kind of configuration and must therefore treat this as an arbitrary choice of Danish. But if it is an arbitrary choice, we should expect to find a variant of Danish, call it Danish', where a different choice has been made. I believe that Icelandic is precisely this kind of Danish', and that where Danish has *NP* as the sister of *AP*, Icelandic has *N*:

- (36) Danish' (= Icelandic)



As far as licensing is concerned, the main difference between the structure for Danish, in (35), and the structure for Danish', in (36), is that in the former  $N$  does not c-command the adjective and in the latter it does. This means that if an affix  $\alpha$  is adjoined to  $N$  in Danish', as *-en/et* was in Danish, it would c-command the adjective and license occurrences of  $F_\alpha$  on it, contrasting with its inability to do so in Danish. For purposes of licensing features on adjectives, then, a post-nominal attachment site would suffice:



And as before, if we attach an additional suffix, call it  $\beta$ , on top of  $\alpha$ , it will c-command both  $\alpha$  and everything that  $\alpha$  c-commanded. In our discussion of Danish earlier we talked about *-t* attaching on top of *-en* and licensing  $F_{Nt}$  both on *-en* and on everything that *-en* c-commanded. Assuming that Danish' has counterparts to the Danish  $F_{DEF}$  and  $F_{Nt}$ , and that these features are spread in the same way in both languages and have licensors that behave like the Danish ones, we would expect Danish' to have exactly the same pattern of definiteness and  $F_{Nt}$  as in Danish with the exception that there will be no need for a pre-nominal definiteness marker. The post-nominal suffix will license  $F_{DEF}$  on  $N$  and on the adjectives, and the post-definiteness suffix corresponding to *-t* will license the counterpart of  $F_{Nt}$  on the definiteness marker and on the adjectives. And since the post-nominal suffix will be good enough, ECONOMY will rule out the more complex pre-nominal form. To complete the analogy with Danish, where the realizer *-e* expressed either definiteness or plurality, Danish' might use its own realizers to express various combinations of features on the adjectives. Schematically, and using for the moment the actual forms of the Danish suffixes, we would expect Danish' to look like this:

- (38)
- a. Indefinite:  $[Adj - t] \dots [Adj - t] [N]$
  - b. Definite:  $[Adj - e] \dots [Adj - e] [N - en - t]$

Real Icelandic, to which we now turn, will follow exactly the pattern in (38), but seeing that will require some effort, both because of its rich morphological paradigm and because of various phonological processes that sometimes obscure the underlying morphological structure.

### 3.2 Overview

Like Danish, Icelandic marks definiteness and does not mark indefiniteness. Like Danish, it also marks a distinction between singular and plural. The gender system of Icelandic is richer than that of Danish, though: it distinguishes between masculine, feminine, and neuter genders, distinctions that survive, at least in part, in the plural part of the paradigm. Finally, Icelandic differs from Danish in that it marks grammatical case, distinguishing between nominative, accusative, dative, and genitive. The distinctions are marked both on nouns and on adjectives, though in different ways, as we will shortly see.

Focusing first on definiteness in Icelandic, it has been observed before that definiteness is marked on the noun, regardless of whether it is a bare noun or is modified by adjectives. Thus, for example, the Nom. Masc. Sg. noun for ‘horse’ is *hestur* when indefinite and *hesturinn* when definite, and the forms for the noun remain the same in the presence of adjectival modification: *gulur hestur* ‘a yellow horse’ and *guli hesturinn* ‘the yellow horse’. The invariance of the nominal form under adjectival modification remains the same in the plural, as well as under changes of gender and case. With respect to definiteness, then, Icelandic follows our characterization of Danish.<sup>28</sup>

Turning our attention to the marking of the various combinations of number, gender, and case, we observe that there are three different places within the noun phrase where elements vary according to these factors. One place is the adjectival ending. The two other places appear after the noun, one between the noun and the definiteness marker, and the other following the definiteness marker. Let us stay with the masculine singular ‘(yellow) horse,’ and let us treat *-in* as the definiteness marker. The following preliminary decomposition of the surface forms arises:<sup>29</sup>

(39) *gul + hest* ‘yellow horse’ (masc.)

	-DEF		+DEF	
	<i>Adj</i>	<i>N</i>	<i>Adj</i>	<i>N</i>
Nom.	gul-ur	hest-ur	gul-i	hest-ur-in-n
Acc.	gul-an	hest	gul-a	hest-in-n
Dat.	gul-um	hest-i	gul-a	hest-in-um
Gen.	gul-s	hest-s	gul-a	hest-s-in-s

The position right after the noun (and before *-in* in the definite) will not concern us too much in what follows. I will call the affix that appears in that place *C1*, just to have a name for it, but as far as I have been able to establish it does not participate in any pattern that might be relevant to the current proposal.<sup>30</sup>

The remaining two positions, the post-adjectival one and the one right after *-in*, will be directly relevant to the analysis of Icelandic as Danish’. In Danish these were the positions that could host *-t*, and I will claim that in Icelandic they can host the affixes that correspond to the Danish *-t*. I will refer to these counterparts of *-t* collectively as

<sup>28</sup>Icelandic does have a pre-nominal definiteness marker, often described as part of a formal register. I will discuss it in section 3.4 below.

<sup>29</sup>The underlying forms are somewhat different. More on that in a moment.

<sup>30</sup>*C1* seems to be absent from the definite form of the dative in (39). As discussed by Orešnik (1972), however, there are phonological reasons to expect the combination *i-in* to surface as *in*.

$C2$ , or, when it will be useful to refer to the  $C2$  affix that corresponds to a particular combination  $\xi$  ( $=\langle n, g, c \rangle$ ) of number, gender, and case, I will write  $C2_\xi$ . My claim, then, will be that the adjectival suffix in an indefinite noun phrase is the same affix as the one that follows the definiteness marker in a definite noun phrase, and that, more generally, (39) instantiates the pattern in (38). Using  $C1$  and  $C2$  and  $-in$ , and writing  $v$  for the adjectival ending in the definite (corresponding to the Danish  $-e$  in the same configuration), we can now restate (38) in Icelandic-appropriate terms:

- (40) a. Indefinite:  $[Adj - C2] \dots [Adj - C2] [N - C1]$   
 b. Definite:  $[Adj - v] \dots [Adj - v] [N - C1 - in - C2]$

The pattern in (40) is what Icelandic would look like if it were our Danish'. How closely does this pattern match the actual data in (39)? The distribution of  $C1$  and of the realizer  $-v$  does not seem directly relevant, and with respect to definiteness I already mentioned above that the distribution of  $-in$  is as predicted. So we are left with the question of whether the adjectival suffix in the indefinite is indeed the same as the affix that follows  $-in$  in the definite. The data in (39) are close to what we want, but identity is not complete. For two of the rows, those of Dat. and Gen., the indefinite adjectival suffix is exactly the same as the one that follows  $-in$  ( $-um$  for Dat. and  $-s$  for Gen.). For Nom. and Acc., on the other hand, the relevant surface forms are not identical. For Nom. we have an adjectival  $-ur$  in the indefinite and  $-n$  following  $-in$ , and for Acc. we have a post-adjectival  $-an$  in the indefinite and  $-n$  following  $-in$ .

To maintain the position that Icelandic is Danish', and that (40) is a correct characterization of the morphological reality, we will need an explanation for the apparent exceptions in the Nom. and in the Acc. One could appeal, perhaps, to contextual allomorphy, but it would be better to avoid this option and find an independent explanation that would allow us to actually predict where and how the surface forms for  $C2$  differ.

Phonology offers precisely this kind of independent explanation. After certain adjectives that end with  $in$ , such as *heiðin* 'heathen' and *heppin* 'lucky,' the  $C2$  endings in the indefinite are  $-n$  for both the nominative and the accusative, rather than the usual  $-ur$  and  $-an$  (cf. Einarsson, 1945, p. 53). Significantly, the  $-in$  in these adjectives has nothing to do with definiteness. Some processes, then, make the  $C2$  forms for Nom. and Acc. surface as  $-n$  (instead of  $-ur$  and  $-an$ ) after the  $-in$  in *heiðin* and *heppin*. It seems plausible enough that the same processes also apply to these  $C2$  forms after the definiteness marker  $-in$ , changing them in the same way.

The phonological processes behind these changes are not entirely surprising. For example, what surfaces as the ending  $-ur$  has been argued by Orešnik (1972) (following Anderson, 1969) to be underlyingly  $-r$ , with  $u$ -epenthesis taking place under certain conditions. Another familiar process is the assimilation of  $r$  to  $n$  following  $n$  (cf. Anderson, 1974; Kenstowicz, 1994). We can state the relevant rules as follows:

$$(41) \quad \emptyset \rightarrow u / C\_r \{C, \#\}$$

$$(42) \quad r \rightarrow n / n\_$$

Ordering (41) before (42) ensures that the Nom.  $C2$  ending would surface as  $-n$  after a final  $-in$ , regardless of whether it is attached to one of the adjectives we mentioned or to the definiteness marker. Elsewhere, in contexts that satisfy the conditions for

epenthesis, *u* would intervene between the previous *n* and the following *-r*, bleeding assimilation.

For Acc., I can find no similar evidence for epenthesis.<sup>31</sup> I will tentatively assume that the Acc. form is due to a process of *a*-deletion:

$$(43) a \rightarrow \emptyset / Cin\_n\#$$

### 3.3 The rest of the paradigm

Given (40) and the indefinite forms, we can already predict correctly what the affix that follows *-in* will be for the Fem. Sg. part of the paradigm.

(44) *gul + kinn* ‘yellow cheek’ fem. sg.

	-DEF		+DEF	
	<i>Adj</i>	<i>N</i>	<i>Adj</i>	<i>N</i>
Nom.	gul	kinn	gula	kinn- <i>in</i>
Acc.	gul- <b>a</b>	kinn	gulu	kinn- <i>in</i> - <b>a</b>
Dat.	gul- <b>ri</b>	kinn	gulu	kinn- <i>in</i> - <b>ni</b>
Gen.	gul- <b>rar</b>	kinn-ar	gulu	kinn-ar- <i>in</i> - <b>nar</b>

The indefinite adjectival endings and the post-definiteness endings are identical for Nom. and for Acc. For Dat. and Gen., the only difference is that where the indefinite adjectival ending begins with *r* the post-definiteness ending begins with *n*. This is what we expect given (42), and we expect it to be a phonological effect: the indefinite adjectival ending where the stem ends with *in* should similarly be *n*-initial. Thus we are not surprised to find that the Fem. Sg. forms of the adjective ‘heathen’ are *heiðin-ni* in Acc. and *heiðin-nar* in Gen., rather than the usual *-ri* and *-rar* endings (cf. Einarsson, 1945, p. 53).

For the neuter singular we will need two final phonological rules.

(45) *gul + barn* ‘yellow child’ neut. sg.

	-DEF		+DEF	
	<i>Adj</i>	<i>N</i>	<i>Adj</i>	<i>N</i>
Nom.	gul- <b>t</b>	barn	gula	barn-i- <b>ð</b>
Acc.	gul- <b>t</b>	barn	gula	barn-i- <b>ð</b>
Dat.	gul- <b>u</b>	barn-i	gula	barn-i- <i>n</i> - <b>u</b>
Gen.	gul- <b>s</b>	barn-s	gula	barn-s- <i>in</i> - <b>s</b>

For Dat. and Gen., the indefinite adjectival ending is identical to the post-*in* ending, as expected. For Nom. and Acc., we find *-ið* instead of the predicted *-in-t*. As with the Masc. endings for Nom. and Acc., what we want is a process of assimilation. I will suggest the following rules, with (46) ordered before (47):

<sup>31</sup>In fact, the diagnostics that Orešnik (1972) uses to show that *u* is epenthetic in *-ur* suggest that the *a* in *-an* is present underlyingly. For example, stem-final *j* drops unless it is followed by a vowel. Thus, masculine singular forms of the adjective stem *miðj* ‘in the middle’ (Einarsson, 1945) surface as *miðj-um* in the dative but as *mið-s* in the genitive. The nominative form is *mið-ur*, suggesting that at some level of representation, the vowel *u* was absent. The accusative form, however, is *miðj-an*, suggesting that *a* was part of the suffix all along.

(46)  $t \rightarrow \delta / Cin\_$

(47)  $n \rightarrow \emptyset / \_ \delta \#$

Again, adjectives ending with *in* provide evidence that this is indeed a phonological process: the Nom. and Acc. forms of ‘heathen’ (neut. sg.) are both *heiðið* (Einarsson, 1945, p. 53).

We can already predict the correspondence in the plural part of the paradigm without further modification:

(48) Masculine: *gul+hest+Pl.*

	-DEF		+DEF	
	<i>Adj</i>	<i>N</i>	<i>Adj</i>	<i>N</i>
Nom.	gul- <b>ir</b>	hest-ar	gulu	hest-ar- <i>n-ir</i>
Acc.	gul- <b>a</b>	hest-a	gulu	hest-a- <i>n-a</i>
Dat.	gul- <b>um</b>	hest-um	gulu	hest-u- <i>n-um</i>
Gen.	gul- <b>ra</b>	hest-a	gulu	hest-a- <i>n-na</i>

Feminine: *gul+kinn+Pl.*

	-DEF		+DEF	
	<i>Adj</i>	<i>N</i>	<i>Adj</i>	<i>N</i>
Nom.	gul- <b>ar</b>	kinn-ar	gulu	kinn-ar- <i>n-ar</i>
Acc.	gul- <b>ar</b>	kinn-ar	gulu	kinn-ar- <i>n-ar</i>
Dat.	gul- <b>um</b>	kinn-um	gulu	kinn-u- <i>n-um</i>
Gen.	gul- <b>ra</b>	kinn-a	gulu	kinn-a- <i>n-na</i>

Neuter: *gul+barn+Pl.*

	-DEF		+DEF	
	<i>Adj</i>	<i>N</i>	<i>Adj</i>	<i>N</i>
Nom.	gul	börn	gulu	börn- <i>in</i>
Acc.	gul	börn	gulu	börn- <i>in</i>
Dat.	gul- <b>um</b>	börn-um	gulu	börn-u- <i>n-um</i>
Gen.	gul- <b>ra</b>	barn-a	gulu	barn-a- <i>n-na</i>

### 3.4 Independent definiteness marking

The structure of the Icelandic noun phrase makes it unnecessary to use a free article-like definiteness marker, and because of ECONOMY we predicted that such marking would in fact be impossible. But ECONOMY is relevant only as long as everything other than licensors remains fixed. If we can find a non-vacuous pre-adjectival head in Icelandic that can combine with *-in* the result will not mean the same as the usual definite form with a post-nominal *-in*, and so ECONOMY will not rule it out. In such case, we expect two further things to happen. First, the post-*D* *-in* will make the post-*N* occurrence superfluous. Second, the post-*in* *C*2 will c-command the adjectives, making lower occurrences of *C*2 superfluous.

Icelandic has a pre-nominal marker that allows us to test these predictions. The precise meaning of this marker is somewhat unclear (my informants reported that the

use of this marker implied some emphatic or emotional value, in addition to definiteness). Morphologically, the marker is composed of a base *hin*, which I will analyze as *h+in*, and a suffix, which we expect to be *C2*. Once the phonological rules above are taken into account, the entire paradigm is derived:

	Sg.	M.	F.	N.	Pl.	M.	F.	N.
	Nom.	hin- <b>n</b>	hin	hið	Nom.	hin- <b>ir</b>	hin- <b>ar</b>	hin
(49)	Acc.	hin- <b>n</b>	hin- <b>a</b>	hið	Acc.	hin- <b>a</b>	hin- <b>ar</b>	hin
	Dat.	hin- <b>um</b>	hin- <b>ni</b>	hin- <b>u</b>	Dat.	hin- <b>um</b>	hin- <b>um</b>	hin- <b>um</b>
	Gen.	hin- <b>s</b>	hin- <b>nar</b>	hin- <b>s</b>	Gen.	hin- <b>na</b>	hin- <b>na</b>	hin- <b>na</b>

And as predicted, if the pre-nominal marker is used, the definiteness suffix cannot appear on *N*, and there are no occurrences of *C2* below:

- (50) a. hinn góði hestur  
the good horse
- b. \*hinn góði hestur-in-n  
the good horse
- c. \*hinn góð-ur hestur  
the good horse

### 3.5 Interim summary

We started with the idea of Icelandic as Danish', where we changed nothing other than the label of the sister of *AP* (*NP* in Danish, and *N* in Danish'). By using five independently motivated phonological rules for Icelandic, we derived the entire correspondence between indefinite adjectival endings and post-definiteness endings in the full paradigm. Our ability to make these predictions supports the SRL approach, and therefore strengthens our case for structural economy in grammar.

## 4 Greek

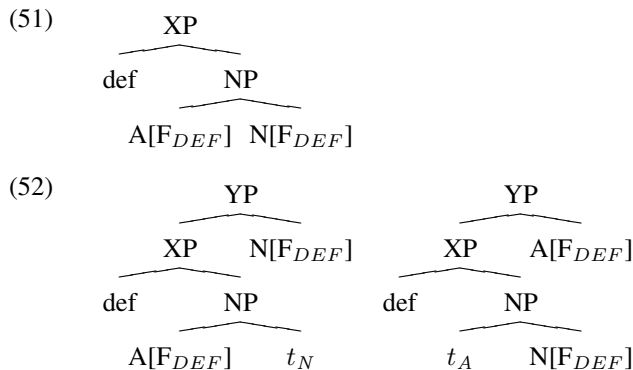
### 4.1 Moving things inside the noun phrase

We saw that the marking patterns in Danish and Icelandic noun phrases lend themselves to an SRL analysis. The novel part of the analysis was the introduction of *licensors*, a function elements that associate with one or more instances of a feature, possibly at a distance. The evidence for licensors and their domains came from the accumulation of distributional facts that they helped predict. The core Danish facts already suggested that an SRL approach has an advantage over licensor-free accounts. Additional data points, both language-internally and cross-linguistically, provided further support for this idea.

There remains a general concern that should be addressed. As is often the case in morphology, the Germanic data that we have tried to analyze made it hard to evaluate competing hypotheses with respect to arbitrarily complex configurations. We were able to increase the level of complexity by considering further elements within the phrase,

partially-overlapping marking patterns, and different choices with respect to phrase structure. Eventually, however, we will run out of new modifiers, patterns, and phrase-structural choices, and even before that we might run out of languages that would allow us to test the relevant combinations. In addition, when we switch to different constructions and different languages it is often hard to ensure that all other factors of relevance remain without change. We could try to show, as we did, that our assumptions have at least some independent plausibility, either by using familiar structural diagnostics or by pointing out new predictions, but ultimately all our evidence in favor of SRL came from the ability of the system as a whole to predict a finite collection of paradigms. What is missing is the ability to take an initial set of configurations and start complicating them in a controlled (and meaningful) way.<sup>32</sup> If we could move elements within the noun phrase we would be able to complicate our configurations in the way we need. Unfortunately, however, Danish and Icelandic have fairly rigid word order within the noun phrase, and the same seems true for other Germanic languages as well.

So what would Danish look like if it allowed elements within the noun phrase to move around? The answer, assuming that our analysis of the Germanic data is correct, depends on what can move where and what positions are available for licensors. Suppose, first, that both  $A(P)$  and  $N$  can right-extrapolate to a position higher than the position corresponding to the Danish *den*.<sup>33,34</sup> Suppose further that when the adjective moves, its features must be licensed in their *surface* position (that is, c-commanding the trace is insufficient for licensing the moved element). (51) shows the base, Danish-like, configuration. (52) shows the configuration for right-extrapolation of  $N$  (string-vacuously) and of  $A$ .



In the basic case, shown in (51), the licensor *def* is sister to  $NP$  and can license  $F_{DEF}$  both on the adjective and on the noun. In each of the dislocated structures,

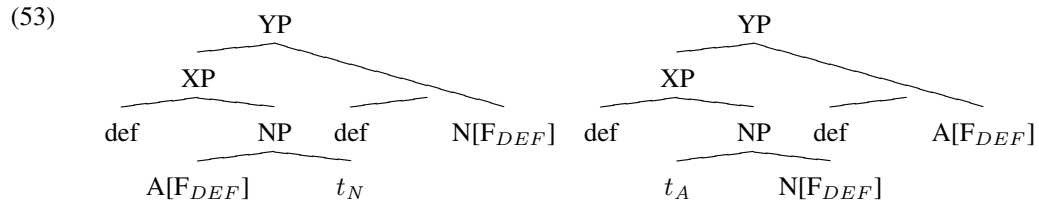
<sup>32</sup>By *meaningful* I mean relevant for comparing competing theories. Stacking additional adjectives before a Danish noun or PPs after it would make the noun phrase more complex in some sense, but all current theories predict that the choice between *den* and *-en* will not change when moving from one adjective to more or from one PP to more.

<sup>33</sup>Or perhaps more naturally, especially from the point of view of structural economy, we could assume that movement must be structurally non-vacuous, cached out in terms of changing hierarchical relations between the moved constituent and at least one other (terminal) node. This would allow  $N$  to move above  $A(P)$  but below *den*.

<sup>34</sup>The question of whether the adjective projects an  $AP$  will not be directly relevant in what follows. From here on I will use  $A$  for the possibly phrasal  $A(P)$ .

however, we now have an unlicensed instance of  $F_{DEF}$ . If *def* can attach not only where we see it above, as sister to *NP*, but also as sister to *YP* or higher, doing so would resolve the licensing issue, making the lower *def* redundant. All we would see, unless there were some intervening element between the two positions, would be a Danish-like language with the possibility of reordering the noun and the adjectives.<sup>35</sup>

A more interesting pattern would emerge if such a higher position for *def* were not available, and if lower, more local attachment sites were available instead. For example, imagine that *def* could take not only *NP* but also *N* and *A* as its sister. In the basic configuration, as in (51), we would have no need for those positions, since *def*'s higher attachment site (as sister to *NP*) would suffice to license all the occurrences of  $F_{DEF}$ . In the dislocated structures, however, the local attachment sites of *def* can come to the rescue. The dislocated element can have a licenser as its sister, licensing its  $F_{DEF}$ , while the original occurrence of *def* licenses  $F_{DEF}$  in the remnant, as before. Neither attachment site c-commands the other, though, so we would get two instances of *def*. Here are the two structures:



For a language that has the attachment possibilities just mentioned, but which is otherwise like Germanic, our predictions so far are the following. The basic word order is [*def A N*], but where dislocation takes place we will find [*def A def N*] and [*def N def A*]. A post-nominal occurrence of *A* is obligatorily preceded by *def*, and if we have independent ways to detect movement, we should be able to confirm that the order [*def A def N*] arises exactly when dislocation takes place. We can also say something about indefinite noun phrases. If the current language is like Danish in treating definiteness as a privative feature, with no indefinite counterpart for  $F_{DEF}$ , dislocation in an indefinite noun phrase should not disrupt any licensing relations. What we expect, then, is that along with a basic [(1) *A N*] we should also find [(1) *N A*], but crucially neither [(1) *N 1 A*] nor [(1) *A 1 N*].

The predictions we have are elaborate and quite specific, and the pattern they lead us to expect is superficially quite different from Germanic. More generally, our hypothetical pattern would be surprising for licenser-free accounts: if *def* is a realizer we would not expect an element to acquire a new occurrence of it by leaving the domain of definiteness (if anything, we might expect to find the opposite); and if *def* is a spreader, any additional occurrence of it would be at odds with everything we believe about the semantics of definiteness. From our current perspective, on the other hand, the pattern is an almost immediate relative of the Germanic marking patterns that we saw.

<sup>35</sup>The pattern just discussed bears a certain resemblance to various patterns of adjectival modification in Romance. It would be interesting to see whether this resemblance is significant, and whether our approach can account for the Romance data, but I will not pursue this idea here.

I believe that Modern Greek, with its intricate patterns of word order and definiteness marking, allows us to test our predictions. These patterns have generated a fair amount of theoretical interest, though, to my knowledge, the proper way to account for them has remained an open question.<sup>36</sup>

Here is the basic pattern of word order and definiteness in Modern Greek:

- (54) a. to            megalo        (to)            vivlio  
          the-NEUT.SG big-NEUT.SG (the-NEUT.SG) book-NEUT.SG  
          ‘the big book’
- b. to            vivlio        \*(to)            megalo  
          the-NEUT.SG big-NEUT.SG \*(the-NEUT.SG) book-NEUT.SG  
          ‘the big book’
- (55) a. ena            megalo        (\*ena)            vivlio  
          1-NEUT.SG big-NEUT.SG (\*1-NEUT.SG) book-NEUT.SG  
          ‘a big book’
- b. ena            vivlio        (\*ena)            megalo  
          1-NEUT.SG big-NEUT.SG (\*1-NEUT.SG) book-NEUT.SG  
          ‘a big book’

The definiteness marker usually precedes the adjective, which in turn precedes the noun.<sup>37</sup> It is possible to have a post-nominal adjective, though this requires a second definiteness marker immediately preceding the adjective. And it is possible, though not necessary, for the noun to have its own marker even in the basic order. For indefinite noun phrases, the basic word order is as in the definite case, but a post-nominal adjectival position is also available. In contrast with the definiteness marker, we never find multiple occurrences of 1. This is just what our Germanic-based story predicts.<sup>38</sup>

<sup>36</sup>For discussion of the facts and for some of the main proposals see Androutsopoulou (1996), Alexiadou and Wilder (1998), Manolessou (2000), Kolliakou (2004), Ioannidou and den Dikken (2007), Lekakou and Szendrői (2007), and Marinis and Panagiotidis (2007), as well as references cited therein. The terms *Determiner Spreading* (from Androutsopoulou) and *Polydefiniteness* (from Kolliakou) are often used to refer to one of the main aspects of the pattern. Mine is by no means the first attempt to bring together the Greek patterns with the Germanic ones. See Alexiadou (2003) for very relevant discussion of the cross-linguistic setting. See also Leu (2007) for an account that treats Greek and Germanic in parallel using remnant movement.

<sup>37</sup>In the absence of an adjective, the definiteness marker still precedes the noun. There is no post-nominal suffix option. In this respect, definiteness in Greek is more similar to languages like German and Dutch than to their Scandinavian cousins. None of this matters here.

<sup>38</sup>A question that arises for any movement account is why things should move within the noun phrase in the first place. I believe that considerations of information structure offer a possible answer. As a rough generalization, using multiple definite markers felicitously requires a context that makes the noun phrase or parts of it anaphoric or contrastive in some sense (see Kolliakou, 2004; for complications and differing views see Manolessou, 2000; Ioannidou and den Dikken, 2007; Marinis and Panagiotidis, 2007). For the current proposal, this suggests an account along the lines of Arregui-Urbina (2002), Wagner (2007), and Kučerová (2007), according to which movement sometimes serves the role of removing given material from the focus domain. As far as I can determine, the correspondence between word order and givenness is as expected by the right-dislocation account (and would be much harder to capture under alternative views). See Katzir (2008) for discussion.

## 4.2 Noun-adjective orderings and rightward movement

We were able to derive the basic pattern of Greek definiteness marking by combining our account of Danish with certain assumptions about movement within the Greek noun phrase. We will soon return to that pattern and test our predictions on more complex structures, but before that I would like to provide some further evidence in support of the kind of movement assumed here, and in particular for the idea of right-dislocation. This is significant since other accounts of Greek definiteness marking that rely on movement (see in particular Androutsopoulou, 1996, Alexiadou and Wilder, 1998, Leu, 2007, and Ioannidou and den Dikken, 2007) usually require that this movement be strictly to the left.<sup>39</sup> My evidence involves order reversal within the noun phrase: while leftward-movement accounts derive the order *def N def A* from movement of the noun past the adjective, the current account derives it from rightward-movement of the adjective past the noun. If in some cases order reversal is not available, the two kinds of accounts will differ in the source of the restriction: a leftward-movement account would seek to relate the restriction to the noun, while a rightward-movement account would attribute it to the adjective. I believe that a certain well-known selectivity in multiple definiteness marking allows us to test these predictions, and that when order reversal is blocked, the sole contributing factor is the adjective, supporting the rightward-movement approach.

While the form *def A N* (the *monadic* construction in Kolliakou's terms) can involve any adjective in Greek, the form *def A def N* (Kolliakou's *polydefinite* construction) appears much more selective. For example, non-subjective adjectives like *ipothemenos* 'alleged' (an alleged murderer is not necessarily a murderer) are degraded when used in polydefiniteness, as are adjectives that, informally speaking, provide an argument of the noun rather than a modification, as in the use of *italiki* 'Italian' as the agent of an action nominal (an Italian invasion can mean an invasion *by* Italy and not just an invasion in an Italian style).

Interestingly, as has been discussed in the literature, the restriction of polydefinites to predicative adjectives is not absolute. For example, Leu (2007) reports that some speakers, at least, accept *o proigumenos o prothipurgus* 'the previous the president' in the relevant context.<sup>40</sup> What makes these apparent exceptions to the generalization of Alexiadou and Wilder (1998) significant for our proposal is that, as far as I have been able to determine, reversing the order in these polydefinite constructions often leads to degradation. Thus, even speakers who accept the example above reject its reversed variant *\*o prothipurgus o proigumenos* '\*the president the previous'. To my knowledge there is no counterpart to this pattern in which the restriction on order reversal depends on the noun.

For a rightward-movement account such as the current one, order reversal results from movement of *A* across *N*. If certain adjectives resist movement, order reversal will be blocked with those adjectives. It is not expected that order reversal should ever depend on the noun. This matches what we just saw: when order reversal is blocked, the conditioning factor is the adjective and not the noun.

<sup>39</sup>Other accounts, such as Kolliakou (2004) and Lekakou and Szendrői (2007) involve no movement at all.

<sup>40</sup>See in this context also Kolliakou (2004)'s observation regarding polydefiniteness in proper names, as in *i Maria i Papadopoulou* 'the M. the P.'.

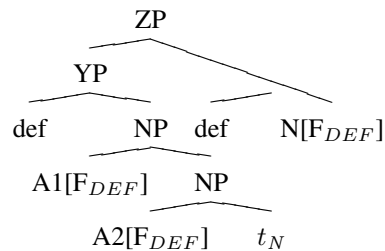
Let us now look at order reversal from the perspective of the leftward-movement account of Alexiadou and Wilder (1998). For Alexiadou and Wilder, the restriction on non-predicative adjectives in polydefiniteness is taken to argue for two domains within the noun phrase: a lower domain, where all adjectives can attach, stacking above the noun and below the first determiner, and a higher domain of clausal structures, each clause hosting its own predicative adjective. It is the higher domain, on their account, that gives rise to polydefiniteness, which explains the restriction of the adjectives in polydefiniteness to those that can appear in predicative positions. Accommodating the counter-examples to this restriction would probably involve allowing the relevant adjectives to be exceptionally generated higher up under the appropriate circumstances; but once this step is done, moving the noun should be no different than in any other polydefinite construction. It is the adjective that is special, not the noun. On such an account, then, the impossibility of order-reversal with non-predicative adjectives comes as a surprise.

### 4.3 Characterizing the general pattern of definiteness marking

What happens when more than one thing can move within the noun phrase? Let us look at a noun phrase with two attributive adjectives. As in Germanic, the adjectives typically stack up on top of the noun and appear to its left. On our assumptions, a single instance of *def* attached as sister to *NP* should suffice to license  $F_{DEF}$  on all the adjectives and on the noun. This is all as one might expect by extrapolating from the case of a single adjective or by using the parallelism with Germanic.

Suppose now that we try to right-dislocate the noun. If we could do that and change nothing else, we would find something like this:

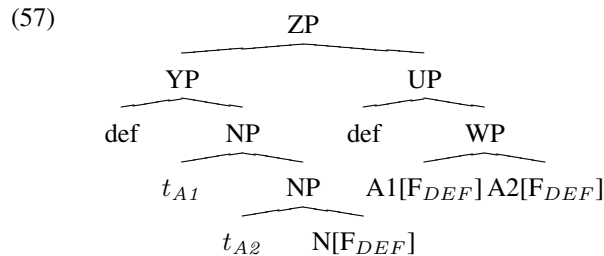
(56) Hypothetical structure for dislocating *N* and keeping the rest fixed



The original *def* would license the instances of  $F_{DEF}$  on *A1* and *A2*, while, as in the case of modification by a single adjective, an extra *def* would be needed to license  $F_{DEF}$  on the dislocated *N*. The bi-definiteness in (56), however, relies on the structure being well-formed (up to licensing), and (56) has one property that makes it an unlikely configuration. In the remnant *NP*, we have two adjectives stacking without a noun at the bottom. Cross-linguistically, however, adjectives can only stack on top of a noun, and Greek appears to be no exception. For example, two adjectives in a predicative position require overt conjunction (the equivalent of *John is tall \*(and) stupid*). It also seems that more is required than having a noun in the right place at some point in the derivation: light nouns, which some accounts treat as moving up across the adjective, do not allow stacking (the Greek equivalent of *something big \*(and) black* also requires

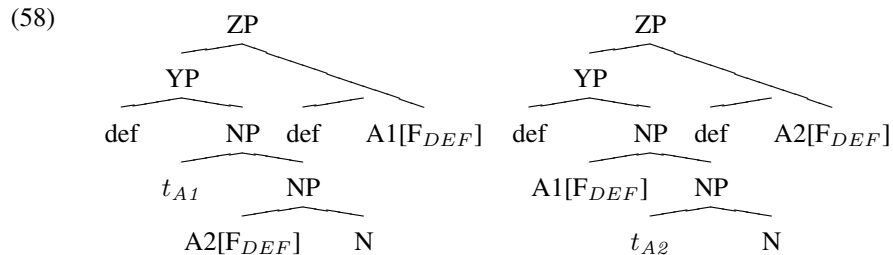
conjunction).<sup>41</sup> The noun can be overt (as it is in most cases), or it can be covert, as in noun ellipsis (the Greek equivalent of *I'll have the big red one* does not have an overt counterpart for *one* and is grammatical), but a noun must be there at the end of the derivation. We would expect, then, that (56) would be ungrammatical, quite independently of issues of licensing. And it is: [*def A1 A2 def N*] is not a possible order.<sup>42</sup>

A similar problem prevents the two adjectives from appearing on the right and sharing a single licenser.



(57) is an attempt to cluster *A1* and *A2* together on the right. This would allow them to use a single instance of *def* to license both of their occurrences of  $F_{DEF}$ . Even if we could find some way to move the adjectives to the relevant positions, the prohibition on noun-less adjectival stacking would rule out the structure. We should therefore not be surprised to discover that [*def N def A1 A2*] is not a possible order.

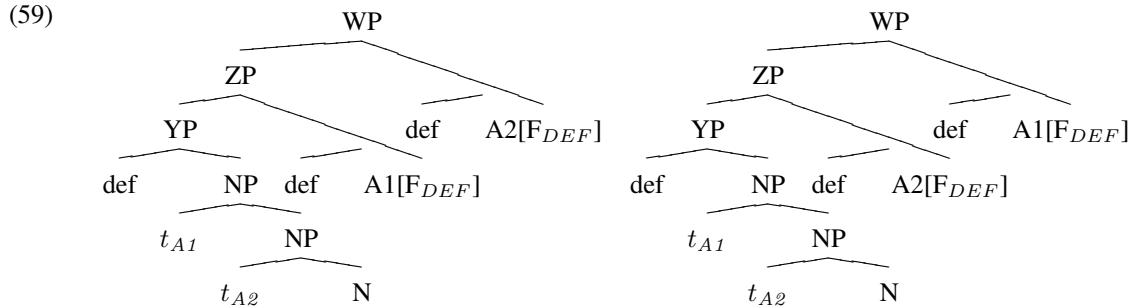
We have just seen two things that cannot happen with multiple adjectives. Let us now look at some things that can happen. One thing that we predict should be fine is the movement of a single adjective to a post-nominal position. As before, this adjective will have an unlicensed  $F_{DEF}$ , so it will cause an extra licenser to appear. Either adjective can do that.



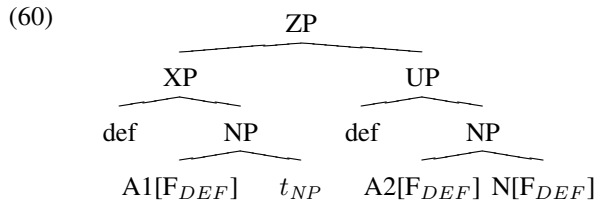
<sup>41</sup>See Kishimoto (2000) for an analysis along these lines. See Larson and Marušič (2004) for problems with such an account.

<sup>42</sup>I don't know why adjectives cannot stack on their own, but it seems to me that type mismatches, along lines discussed by Irene Heim in a couple of unpublished handouts, would be a promising way to go. In the framework of Heim and Kratzer (1998) adjectives are of the same type as nouns, and their combination is intersective, using Predicate Modification (PM). If PM is indeed available, we would predict stacking as a general phenomenon, contrary to fact. On the other hand, if Function Application (FA) were the only option for combining two elements, we would predict that two items of the same type could never combine. This would correctly rule out stacking in the absence of an element of a different type down below. For our cases here, and in order to rule out stacking with *N*-movement more generally, one would also have to prevent the moved noun from leaving a trace with the semantic type of nouns.

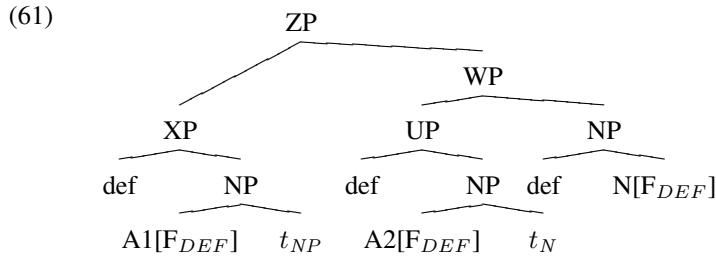
Or both adjectives could move, one after the other, stacking above  $N$ . Either adjective can be the first to move.<sup>43</sup>



Another thing that could happen is that the whole  $A2 + N$  combination would move:



Finally, the movement in (60) can be combined with local movement of  $N$  above  $A2$  or of  $A2$  above  $N$ . As long as  $N$  lands below  $ZP$ , no adjective stacking would occur.



In other words, we predict that any number of adjectives can stack above the noun and appear to its left, sharing a single licensor; any other adjective, either pre- or post-nominally will require its own licensor. Schematically, we could write the predicted possibilities as follows:

- (62) Predicted word order possibilities in definite Greek noun phrases:  
*(Def A)\* Def A\* N (Def A)\**

<sup>43</sup>This assumes that the operation that dislocates the adjectives is not subject to intervention effects and does not render the remnant domain opaque.

As far as I can see, our predictions capture precisely the patterns described in the literature by Alexiadou and Wilder, Kolliakou, Marinis and Panagiotidis (2007), and others.<sup>44</sup>

## 5 Discussion

I have argued that grammar can make use of licensors, elements that are related to semantically contentful heads, but only via features that those heads spread and that require licensing. The distribution of licensors was argued to be constrained by economy: if a certain number of licensors suffice to license all the features in the structure, any additional licensor will lead to ungrammaticality. The evidence in favor of this theory, which I have called SRL, came from mismatches between morphology and semantics, where what looked like the expression of a semantic notion like definiteness appeared in places that made a compositional account difficult to maintain. We saw that SRL offers a uniform account for a variety of such mismatches and their interactions, both within one language and across languages.

We also addressed a familiar concern about morphological theories. Despite the richness of some paradigms, it is often hard to rule out the possibility that the observed patterns are accidental and do not reflect an underlying system. A theory can all too easily describe a system where none exists. To address this problem, we added complexity to the structure of the Danish noun phrases we started with, first by considering various modifiers and their combinations, and then by combining two marking patterns, that of definiteness and that of gender. We used Icelandic to investigate a phrase-structural variation that was not testable in Danish. Finally, we found an environment, the Modern Greek DP, in which the predictions of our theory could be tested on increasingly complex structures.

## References

- Alexiadou, Artemis. 2003. Adjective syntax and (the absence of) noun raising in the DP. In *Proceedings of the Workshop on Head-Movement*, 1–39. UCLA.
- Alexiadou, Artemis, and Chris Wilder. 1998. Adjectival modification and multiple determiners. In *Possessors, predicates and movement in the determiner phrase*, ed. Artemis Alexiadou and Chris Wilder, 303–332. John Benjamins.
- Anderson, Stephen. 1969. An outline of the phonology of Modern Icelandic vowels. *Foundations of Language* 5:53–72.
- Anderson, Stephen. 1974. *The organization of phonology*. New York: Academic Press.
- Androutopoulou, Antonia. 1996. The licensing of adjectival modification. In *Proceedings of WCCFL 14*, ed. José Camacho, Lina Choueiri, and Maki Watanabe, 17–31.
- Arregui-Urbina, Karlos. 2002. Focus on Basque Movements. Doctoral Dissertation, MIT, Cambridge, Mass. URL <http://hdl.handle.net/1721.1/8159>.

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<sup>44</sup>Some speaker variation exists. In particular, Sabine Iatridou and Giorgos Spathas, in independent p.c.'s, reject out of hand any combination of a non-trivial monadic domain with a polydefinite one, in either order. I will not attempt to characterize this variation here.

- Basbøll, Hans. 2005. *The phonology of Danish*. Oxford University Press.
- Börjars, Kersti, and Mark Donohue. 2000. Much ado about nothing: Features and zeroes in Germanic noun phrases. *Studia Linguistica* 54:309–353.
- Carlson, Greg. 1983. Marking constituents. In *Linguistic categories: Auxiliaries and related puzzles*, ed. F. Heny and B. Richards, volume 1, 69–98. Dordrecht: Reidel Publishing.
- Chomsky, Noam. 1986. *Barriers*. Cambridge, MA: MIT Press.
- Delsing, Lars-Olof. 1993. On attributive adjectives in scandinavian and other languages. *Studia Linguistica* 47:105–125.
- Einarsson, Stefán. 1945. *Icelandic*. Baltimore and London: Johns Hopkins University Press.
- Embick, David, and Alec Marantz. 2008. Architecture and Blocking. Ms., UPenn and MIT/NYU, to appear in *Linguistic Inquiry* 39:1.
- Embick, David, and Rolf Noyer. 2001. Movement operations after syntax. *Linguistic Inquiry* 32:555–595.
- Fox, Danny. 2000. *Economy and semantic interpretation*. MIT Press.
- Halle, Morris, and Alec Marantz. 1993. Distributed morphology and the pieces of inflection. In *The view from Building 20*, ed. Kenneth Hale and Jay Keyser, 111–176. MIT Press.
- Hankamer, Jorge, and Line Mikkelsen. 2002. A morphological analysis of definite nouns in Danish. *Journal of Germanic Linguistics* 14:137–175.
- Hankamer, Jorge, and Line Mikkelsen. 2005. When movement must be blocked: A response to Embick and Noyer. *Linguistic Inquiry* 36:85–125.
- Heim, Irene, and Angelika Kratzer. 1998. *Semantics in generative grammar*. Malden, MA: Blackwell.
- Hulsey, Sarah, and Uli Sauerland. 2006. Sorting out relative clauses. *Natural Language Semantics* 14:111–137.
- Ioannidou, Alexandra, and Marcel den Dikken. 2007. P-Drop, D-Drop, D-Spread. To appear with MITWPL, November 2007.
- Julien, Marit. 2002. Determiners and word order in Scandinavian DPs. *Studia Linguistica* 56:264–314.
- Katzir, Roni. 2008. Structural competition in grammar. Doctoral Dissertation, MIT.
- Kayne, Richard. 1994. *The antisymmetry of syntax*. Cambridge, MA: MIT Press.
- Kenstowicz, Michael. 1994. *Phonology in Generative Grammar*. Blackwell.
- Kishimoto, Hideki. 2000. Indefinite pronouns and overt N-raising. *Linguistic Inquiry* 31:557–566.
- Kolliakou, Dimitra. 2004. Monadic definites and polydefinites: Their form, meaning and use. *Journal of Linguistics* 40:263–323.
- Kučerová, Ivona. 2007. The syntax of givenness. Doctoral Dissertation, MIT, Cambridge, Mass.
- Larson, Richard, and Franc Marušič. 2004. On indefinite pronoun structures with APs: Reply to Kishimoto. *Linguistic Inquiry* 35:268–287.
- Lekakou, Marika, and Kriszta Szendrői. 2007. Eliding the noun in close apposition, or Greek polydefinites revisited. In *Ucl working papers in linguistics*, ed. Richard Breheny and Nikolaos Velegrakis, volume 19, 129–154. UCL.
- Leu, Thomas. 2007. From Greek to Germanic: Poly-(\*)in-definiteness and weak/strong

- adjectival inflection. URL <http://ling.auf.net/lingBuzz/000392>, ms., NYU, January 2007.
- Manolessou, Ioanna. 2000. Greek noun phrase structure: A study in syntactic evolution. Doctoral Dissertation, University of Cambridge, Cambridge, UK.
- Marantz, Alec. 1997. No escape from syntax: Don't try morphological analysis in the privacy of your own lexicon. In *Proceedings of the 21st Annual Penn Linguistics Colloquium*, ed. A. Dimitriadis, L. Siegel, C. Surek-Clark, and A. Williams, volume 4.2 of *UPenn Working Papers in Linguistics*, 201–225.
- Marinis, Theodoros, and Phoevos Panagiotidis. 2007. Determiner spreading as DP-predication. Ms., University of Reading and Cyprus College, Under review.
- Matushansky, Ora. 2008. A case study of predication. In *Studies in Formal Slavic Linguistics. Contributions from Formal Description of Slavic Languages 6.5*, ed. Franc Marušič and Rok Žaucer, 213–239. Frankfurt am Main: Peter Lang.
- May, Robert. 1985. *Logical form: Its structure and derivation*. Cambridge, Mass.: MIT Press.
- Orešnik, Janez. 1972. On the epenthesis rule in Modern Icelandic. *Arkiv för nordisk filologi* 87:1–32.
- Pesetsky, David. 2007. Russian case morphology and the syntactic categories. Handout of a talk given at the Leipzig-Harvard Workshop on Morphology and Argument Encoding, September 2007.
- Poser, William J. 1992. Blocking of phrasal constructions by lexical items. In *Lexical matters*, ed. Ivan Sag and Anna Szabolsci, 111–130. Stanford, CA: CSLI Publications.
- Svenonius, Peter. 1993. Selection, adjunction, and concord in the DP. *Studia Linguistica* 47:198–220.
- Svenonius, Peter. 1994. The structural location of the attributive adjective. In *Proceedings of the West Coast Conference on Formal Linguistics*, ed. Erin Duncan, Donka Farkas, and Philip Spaelti, volume 13, 439–454.
- Wagner, Michael. 2007. Givenness and locality. In *Proceedings of SALT 16*, ed. Jonathan Howell and Masayuki Gibson, 295–312. Ithaca, NY: CLC Publications. URL <http://hdl.handle.net/1813/7594>.