Tumbling down the Icelandic Noun Phrase:

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0. Introduction

In this paper I explore the Icelandic traditional noun phrase (TNP) and its structure. Although in many cases the order of elements is in accordance with Greenberg’s Universal #20, a certain number of variable orders of elements is observed. Namely that in case of the enclitic article the unmarked order of elements appears to be as follows:

(1) \text{ADJECTIVE} > \text{NOUN-ARTICLE} > \text{NUMERAL}

rauði bílar-nir þrír
red car-art three
the three red cars

Previous accounts have generally either failed to account for the postnominal sphere or made erroneous predictions regarding the phonology of the elements at hand, both resulting from attempting to unify the movement of the noun and adjective. However, recent research into the position of adjectives (Pfaff 2007, 2009, to appear) point to the fronting of the adjective being motivated by independent factors.

This paper aims to account for the variation in the order of elements in the Icelandic NP within the framework of Distributed Morphology (DM; Halle & Marantz 1993, Harley & Noyer 2003, Embick & Noyer 2007) utilizing structure implied by previous work on compounding (Harðarson 2013). The word structure argued for in Harðarson (2013) is the one shown in (2). For a discussion of these heads and their function, see section 3.

(2)

\[
\begin{array}{c}
\text{ω} \\
\varphi \\
\text{n} \\
\sqrt{\text{ROOT}}
\end{array} \quad \begin{array}{c}
\varphi \\
\text{n}
\end{array}
\]

\[
\begin{array}{c}
\omega \\
\varphi \\
\text{n}
\end{array}
\]

\[
\begin{array}{c}
\omega
\end{array}
\]

\[
\begin{array}{c}
\varphi
\end{array}
\]

\[
\text{ω}
\]

\[
\text{φ}
\]

\[
\text{n}
\]

\[
\sqrt{\text{ROOT}}
\]

\[
\text{n}
\]

\[
\text{ω}
\]
The structure in (2) implies that the structure of what is traditionally referred to as N in fact consists of at least these three functional heads, which are combined via head movement.

This paper is organized as follows. In section 1, I will discuss the core facts surrounding the Icelandic NP. In section 2, I will discuss some examples of previous approaches. These approaches fall into three categories, head movement approaches, phrasal movement approaches and roll-up approaches. In section 3, I will present my account of the Icelandic NP based on (2).

1. The organization of the Icelandic NP

In this section, I will discuss the core data revealing the organization of the Icelandic NP. The facts discussed here have all been reported in various sources at various times. The discussion here will be based on Magnússon (1984), Sigurðsson (1993, 2006), Þráinsson (2005, 2007) and Pfaff (2007, 2009, to appear). First I will discuss the prenominal field in the Icelandic NP in the context of Greenberg’s Universal #20 followed by a discussion of the postnominal field. In section 1.3 I will discuss word order variation within the definite NP. In section 1.4 I will summarize the facts discussed in the previous subsections and give some preliminary discussion of the structural relations indicated by the data.

1.2 The prenominal field and Greenberg’s Universal #20

In an indefinite NP, the order observed is in accordance with Greenberg’s universal 20, namely NUMERAL - ADJECTIVE - NOUN as in (3a). There is no indefinite article in Icelandic. The order of elements in the prenominal field in Icelandic appears to be fixed in indefinite NPs and only
marginal variation is observed. The same order of elements is found in definite NPs with a loose article or a demonstrative pronoun. Examples of each construction are given below. Note that agreement features not directly relevant to the discussion at hand have been omitted for expository purposes. The abbreviations wk and str stand for weak and strong declensions. These will be discussed below.

(3) a. NUMERAL > ADJECTIVE > NOUN
    þrjár góð-ér bækur
    three good-str books
    three good books

b. ARTICLE > NUMERAL > ADJECTIVE > NOUN
    hinar þrjár góð-u bækur
    art three good-wk books
    the three good books

c. DEMONSTRATIVE > NUMERAL > ADJECTIVE > NOUN
    þessar þrjár góð-u bækur
    these three good-wk books
    these three good books

d. POSS > NUMERAL > ADJECTIVE > NOUN
    mínar þrjár góð-u bækur
    my three good-wk books
    my three good books

The construction in (3b) has often been written off as “literary” or “bookish” (e.g. Sigurðsson 1993, 2006). However, Pfaff (2007, 2009, to appear, see also Þráinsson 2007:88-90) reports that it is not always so. Studies conducted and reported by Pfaff have shown that given the proper context (3b) is in fact the preferred construction and the choice of construction can be of

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1 To my knowledge, the only variation in the indefinite NPs is the order NOUN - ADJECTIVE, which is used to give an archaic flavor. This order is found in old Icelandic (e.g. Faarlund 2004:68-69), e.g. the following passage from Brennumjalssaga (~1300.):
(i) Hún var Skarphéðinsdóttir, kvensköringur mikill…
    she was Skarphéðin’s daughter exceptional woman great
    ‘She was a daughter of Skarphéðinn, a great exceptional woman…’
semantic significance. I will come back to this below. The possessor in Icelandic is generally postnominal, as will be discussed below. However, in certain contexts, usually when contrastive, it can appear prenominally. When the possessor is prenominal, the order of numerals, adjectives and nouns is the same as in (3b-c).

Some notes on adjectival inflection are in order before moving on. In addition to agreement in terms of gender, number, and case, Icelandic adjectives agree in terms of definiteness. This is shown in (3), where all three examples involve nominative, plural feminine, but in the indefinite NP in (3a), the inflectional suffix of the adjective is realized as -ar, while in the definite NPs in (3b-c) the suffix is realized as -u. The indefinite declension pattern is traditionally referred to as strong and the definite as weak and I will be using the traditional terms in this paper. The weak declension only appears in the context of a definite NP (see section 3 for discussion and some complications). Predicative adjectives always receive strong declension regardless of whether the NPs they agree with are indefinite or indefinite.

(4) a. Hákarlar eru glað-ir.
   sharks  are  happy-str
   Sharks are happy.

   b. Hákarlarnir eru glað-ir.
   sharks.art  are  happy-str
   The sharks are happy.

   c. *Hákarlarnir eru glöð-u
   sharks.art  are  happy-wk

Hence it appears that the definite declension is conditioned by NP-internal factors, which will be discussed in section 3.
1.2 The postnominal field

The default order of elements in the post nominal field is NOUN > GENITIVE > ARGUMENT PP. This order does not vary within the NP, nor does it appear to be affected by the thematic role of the genitive, whether it is a possessor, agent or a theme. This is shown below. More study is needed, however, before it can be said with certainty whether there are truly no effects depending on the thematic role of the genitive. For the discussion below, it does not seem to have any effects. Icelandic only allows for one genitive in a non-partitive construction (Magnússon 1984:102).

(5) NOUN > GENITIVE > ARGUMENT PP
   a. mynd Garp-s af skinku
      picture Garp-gen of ham
      Garp’s picture of ham.
   b. Greining Astrid-ar á nafnliðaformgerð
      analysis Astrid-gen on noun.phrase.structure
      Astrid’s analysis of NP structure.

Genitives can also serve as antecedents to reflexives within argument PPs. This does not seem to be affected by whether the genitive is a possessor or an agent. In (6a) Garp can be either the creator or the owner of the picture. In the absence of an augment PP, the genitive can also be a theme. This relation is not symmetrical, as is shown in (6c, d).
The same is true of pronominal possessors (or any other role) whether genitive, (7a) or agreeing (7b).

(7) a. mynd han-s af sjálfum sér
picture he-gen of self refl
his picture of himself

b. mynd mín af sjálfum mér
picture my.nom of self me
my picture of myself

These facts point to a structure in which a genitive/possessor c-commands the argument PP.

Given that genitives do not seem to show different behavior depending on their thematic role, I will not be making such distinctions in the following discussion and refer to them as possessors.

1.3 Definite NPs and word order variation

Unlike the indefinite NP, there is variation in the order of elements in the definite NP. The unmarked order of elements is ADJECTIVE > NOUN-ARTICLE > NUMERAL, where the determiner
has been cliticized\(^2\) to the noun and the numeral is postnominal. This is not always the case though. It is also possible for the adjective to remain in its same position relative to the numeral:

**NOUN > NUMERAL > ADJECTIVE.** Under a non-partitive reading, these two are the only possible orders of these elements. Examples of this are given below:

(8) a. **ADJECTIVE > NOUN-ARTICLE > NUMERAL**  
   góð-u/ar bækur-nar þrjár  
   good-wk/str books-art three  
   the three good books

b. **NOUN-ARTICLE > NUMERAL > ADJECTIVE**  
   bækur-nar þrjár góðu  
   books-art three good

c. **ADJECTIVE > NUMERAL > NOUN-ARTICLE**  
   *góðu þrjár bækur-nar  
   good three books-art

d. **NUMERAL > ADJECTIVE > NOUN-ARTICLE**  
   (*þrjár góðu bækur-nar  
   three good books-art

The order in (8d) is possible for some speakers under a partitive reading, which will be set aside for the purposes of this paper. As for the two options in (8a-b), the choice between the two is not simply a stylistic one, as was pointed out by Pfaff (2007). Generally the adjective receives a restrictive reading in the order shown in (9a) with weak declension and usually receive a non-restrictive reading in in the order shown in (9b). This is contrast is shown below.

\(^2\) Although there have been attempt of arguing that the enclitic article is an affix due to some affix-like phonological behavior (e.g. Rögnvaldsson 1990, Indriðason 1994), when the overall characteristics are taken into account it becomes clear that the article is in fact a clitic, following the criteria of e.g. Zwicky (1977) and Zwicky & Pullum (1983) (see e.g. Faarlund 2009 on Old Norse, Börjars and Harries 2008 on modern Mainland Scandinavian and Anderson 1974, Kiparsky 1984 and Pfaff 2008 on Icelandic). Just to name two criteria, the enclitic article has a free word counterpart and it has its own inflection. The details the phonological behavior are left for further research
(9) a. Allar góðu bækurnar hans brunnu.
   all good.wk books.art his burned
   All of his good books burned. (Some of his mediocre to bad books may have survived)

   b. Allar bækurnar hans góðu brunnu.
   all books.art his good.wk burned
   All of his good books burned. (They were all good)

In case of the order shown in (8a) where the adjective receives a strong declension, only a
nonrestrictive reading is available (e.g. Pfaff to appear, Þráinsson 2007:2-4). In case of (3b)
above, the adjective also receives a non-restrictive reading. Furthermore, in case of inherently
non-intersective adjectives,\(^3\) only the post articular position is available. The presence of
numerals does not appear to have effects on this behavior.

(10) a. #svokallaða afstæðiskenning-in
   so-called theory.of.relativity-art
   the so-called theory of relativity

   b. hin svokallaða afstæðiskenning
   art so-called theory.of.relativity

   c. afstæðiskenning-in svokallaða
   theory.of.relativity-art so-called

   (Pfaff 2007:49)

The possible readings and adjective positions seem to for the most part line up with Cinque’s
(2010) direct modification (DM) and indirect modification (reduced relative clauses, IM),\(^4\) where
in the order ADJ > N-ART > NUM, adjectives tend to get a reading associated with indirect
modification, but in case of N-ART > NUM > ADJ or ART > NUM > ADJ > N, they tend to receive

\(^3\) Or more accurately, inherently non-predicative adjectives (Pfaff p.c.)

\(^4\) Cinque (2010) splits possible readings available with adjectives into two sets, Indirect Modification (IM) and
Direct Modification (DM). He argues that IM adjectives should be analyzed as reduced relative clauses (RRC) and
predicts that they should always be either postnominal and then lower than DM adjectives, or higher than DM
adjectives if prenominal.
readings associated with direct modification. It might be tempting at this point to argue that the adjective in (8b) and (10b,c), where the article is to the right of the article, should be analyzed as direct modifiers. However, as discussed by Pfaff (to appear), direct - indirect modification does not line up entirely with the two positions of the adjective. In fact, there are cases where the two appear to be reversed:

(11) a. þýski kanslari-nn (er ástralskur)
    German chancellor-art is Australian
    the German chancellor

b. hinn þýski kanslari (#er ástralskur)
    art German chancellor

c. kanslari-nn þýski (#er ástralskur)
    chancellor-art German

(adapted from Pfaff to appear)

In this case, (11a) receives a non-intersective reading (the chancellor of Germany) which is associated with DM. The person holds the position of chancellor of Germany and there is no contradiction in stating that he/she is Australian. (11b, c), on the other hand, receive an intersective reading (the chancellor who is German), which is associated with IM. The chancellor himself/herself is German, but might be the chancellor of Switzerland, hence the contradiction in (11b, c). If the position of the adjective relative to the article is taken to indicate whether an adjective is a DM or an IM, it would be surprising that the pattern would be reversed as it is in (11). The reversal of the pattern indicates rather that the available reading of the adjective is contingent on its position in the TNP and its relationship to the noun. The intricacies of the relations between adjectives and the nouns they modify, however, falls beyond the scope of this paper, so I will leave it there for now. However, the fact that the position of the adjective is not
neutral with regards to semantic interpretation does provide motivation for parts of the account proposed in section 3.

As was mentioned in the previous subsections, possessors are generally postnominal, (5-7), but can in certain contexts be prenominal, (3d). In definite NPs different positions of pronominal and non-pronominal possessors are also observed. In NPs such as the ones in (3b-c), both pronominal and non pronominal possessors appear in their canonical positions as seen below:

(12)  ARTICLE > NUMERAL > ADJECTIVE > NOUN > POSSESSOR > ARGUMENT PP

   a. hinar þrjár góðu myndir mínar af Garpi
      art three good pictures my of Garp
      my three good pictures of Garp
   
   b. hinar þrjár góðu myndir hans af Garpi
      art three good pictures his of Garp
      his three good pictures of Garp
   
   c. hinar þrjár góðu myndir Jónasar af Garpi
      art three good pictures Jónas of Garp
      Jonas’ three good pictures of Garp

   5 Here should be noted that for most speakers of Icelandic, a proprial article is required with possessors in definite NPs. The proprial article takes the form of a genitive 3p pronoun. Hence, for most speakers, (12c) and similar NPs would have the form given below:
   (i) hinar þrjár góðu myndir hans Jónasar af Garpi
      art three good pictures he.gen Jónas-gen of Garp
      the three good picture of Jonas’ of Garp
   There is a variety that does not require the proprial article, and so, for the sake of clarity, it will be omitted in this paper. Old norse also did not seem to require the proprial article (see Faarlund 2004:60). Its presence or absence does not bear on the discussion at hand.
However, in case of the cliticized article, as in (8), pronominal possessors directly follow the noun, but non-pronominal possessors cannot.

This position of the pronominal possessor in (14) is obligatory, whereas non-pronominal possessors must occur to the right, separated from the noun by a numeral as is shown below:

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6 The presence or absence of the proprial article has no effects here.
The same pattern is observed in the order shown in (8b), where the adjective remains behind.

(16) NOUN-ART > PRON POSS > NUMERAL > ADJECTIVE > POSS > ARGUMENT PP

a. kenningar-nar mínar þrjár svökólluðu um nafnliðaformgerð theories-art my.nom three so-called about NP.structure
   my three so-called theories about NP structure

b. kenningar-nar hennar þrjár svökólluðu um nafnliðaformgerð theories-art she.gen three so-called about NP.structure
   her three so-called theories about NP structure

c. kenningar-nar þrjár svökólluðu Astridar um nafnliðaformgerð theories-art three so-called Astrid.gen about NP.structure
   Astrid’s three so-called theories about NP structure

1.4 Some preliminary words on structure

Given the discussion so far, it does seem reasonable to assume that the order of elements compatible with Greenberg’s universal 20, which is also the only order encountered in indefinite NPs, to be the unmarked order of elements from which the orders discussed in section 1.3 are derived. Furthermore, the postnominal position of possessors is taken to be the unmarked position. The structural configuration of the elements in their unmarked positions (but not necessarily basic positions), from which the other word orders can be derived, is expected to be along the lines of the following.
As indicated by the binding facts in (6-7), the possessor must c-command argument PPs and this relation is asymmetrical. Another issue is whether the noun in (17) is in its base-position or a derived position. The approach taken in this paper (section 3) is that the position is derived.

2. Previous accounts of the Icelandic definite NP.

In this section I will discuss previous accounts of the Icelandic traditional noun phrase (TNP) and their shortcomings. These accounts can be divided into three types: head movement analyses, phrasal movement analyses and roll-up analyses. As representative examples of the head movement analyses, I will discuss Faarlund (2004, 2009), Sigurðsson (1993) and Delsing (1993), each of which argues that the order of elements in the definite NP is achieved via head movement of N to D via A. For the phrasal movement approach I will discuss Julien (2002, 2005) and Vangsnes (1999), both of which argue that the order of elements is achieved via phrasal movement of AP/αP to Spec DP. For a roll-up account I will discuss Vangsnes (2004).

2.1 Head movement analyses

Delsing (1993a), adopting Abney’s (1987) DP hypotheses, argued that the affixal/clitic article in Icelandic is derived via head movement of N to D. Following Abney, Delsing assumes that DP subcategorizes for AP, which in turn subcategorizes for NP. The derivation of a DP such as rauði
*bíllinn* (‘the red car’) would then proceed in the following manner: N moves to A, followed by a movement of the complex head \([A+N]\) to D, yielding the complex head \([A+N]+D]\):\(^7\)

(18) a. rauði  bíll-inn  
     red.def  car-art.  
     the red car  

b.  

\[ 
\text{DP} \\
\text{D} \\
\text{THE} \\
\text{A} \\
\text{RED} \\
\text{N} \\
\text{CAR} \\
\text{NP} \\
\text{AP} \\
\]

Although this approach does achieve the correct order of elements in the prenominal field, this approach makes a false prediction regarding the phonological interactions between the elements, e.g. stress assignment. If A and N+D were to form a complex head it would be expected that the stress pattern observed would be that of a compound. This is however not the case, the stress pattern observed in NPs such as (17a) is phrasal (see e.g. Árnason 2011:285-289).

Another problem with this analysis comes from contrasts such as the following, (cf. (8b above):

(19) a. bíll-inn rauði  
     car-art  red-def  
     the red car  

b. rauði  bíll-inn  
     red-def  car-art  

In order to derive an NP such as (19a) under Delsing’s approach, would require N to skip over A on its way to D, violating constraints on head movement (e.g. Travis 1984, Rizzi 1990 among

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\(^{7}\) Note that Icelandic, like English, does not allow adjectival complements with prenominal adjectives.
others) or excorporation of N out of A+N. As discussed by Pfaff (To appear, 2009, 2007 see also discussion above), placement of the adjective has semantic consequences. Hence the preposing of the adjective appears to be motivated by factors, independently of N-to-D movement. Furthermore, if modifiers of adjectives are taken to be in spec-AP, this approach predicts that adverbs modifying adjectives are stranded when A is preposed. This is not the case, as is shown below:

(20) a. of stór-i bíll-inn
too big-def car-art
the too big car

b. *stór-i bíll-inn of
big-def car-art too

As for possessors, Delsing argues for separate base position of genitives and possessive pronouns. Genitives are assumed to be generated as complements of N whereas possessive pronouns are generated as heads of a possessive phrase.

Two problems arise from this approach. One one hand, there is a question of argument PPs (complements) which should either not be able to co-occur with genitives or, be right-adjoined to NP. Should all postnominal PPs be adjuncts, extraction possibilities are predicted to be very limited, as extraction has often been taken as a diagnosis of adjuncthood (see e.g. Chomsky 1986, Schütze 1995). As will be discussed below, Icelandic postnominal PPs do show an argument-adjunct distinction in terms of extraction possibilities, and so, it cannot be the case that all postnominal PPs are adjuncts. These postnominal PPs can co-occur with postnominal genitives, as was seen above, but do not seem to have a place in the structure proposed by Delsing.
On the other hand, this configuration can be objected to on the basis of thematic roles. If possessor relation (or whatever relation genitives can have with N) is a thematic relation, assuming UTAH (Baker 1988, 1997), it would not be expected that the same thematic role would be assigned in such different positions.

Sigurðsson (1993) does fare better when it comes to the postnominal sphere. Under Sigurðsson’s approach, argument PPs are complements of N and possessors are specifiers. NP is dominated by a KP and N undergoes head movement to K. This is shown below (adapted from Sigurðsson 1993:191).  

8 Sigurðsson’s theory could easily be translated into a more current framework such as DM. Jonathan Bobaljik (p.c.) points out that instead of the structure given in (21b) the structure could be as the one in (i), where an acategorial argument taking root moves to n. Adjectives may then in turn be either adjoined to nP or in spec-nP.

This update will certainly partially sidestep some of the problems to be discussed below. However, the problem of whether the fronting of the noun and adjective is to be treated as a single movement operation or as two separate operations remains. A running theme in previous approaches has been to treat them as a single movement operation and Sigurðsson (1993) certainly falls into that category. Hence it may sidestep the incorporation problem, while accounting for e.g. (10c) [is this the right exx number?] will remain an issue. A structure as the one in (i) would perhaps force a two movement analysis and would bring his theory significantly closer to the approach argued for in this paper.
As for the prenominal sphere, Sigurðsson argues that attributive adjectives base generated as head-adjointed to N. Modifiers of adjectives are in turn head-adjointed to A. Although this does prevent the stranding of adjective-modifying adverbs, three serious problems come up. First, as with Delsing’s approach, head adjunction of A makes erroneous predictions regarding phonological interaction of the elements in question. Second, as will be discussed in section 3.3.2, Icelandic also allows adjective stranding ellipsis, which further undermines base generating adjectives as heads adjoined to N. Finally, this approach precludes any independent movement of any of the elements in question that are attested either in Icelandic or cross-linguistically, e.g. postnominal adjectives as discussed by Pfaff (op. cit.), as in (22) possible left-branch extraction of adverbs from APs (Rögnvaldsson 1996, Þráinsson 2007:107-109, Talić 2013), (23).

(22) a. frægu mennir-nir þrír ___
    famous men-art three ___
    the three famous men

    b. mennir-nir þrír frægu ___
    men-art three famous ___

(21) a. greining Jóns á vandamálinu
    analysis-nom Jón-gen on problem.art
    Jón’s analysis of the problem

b. KP
   K
   NP
   NP
   N
   N’
   JÓN
   ANALYSIS
   OF THE PROBLEM
Under Sigurðsson’s approach, both (22b) and (23b) would have to involve movement of an element out of a complex head (excorporation), which is disallowed by standard constraints on head movement.

Faarlund (2004, 2009) proposes an analysis of Old Norse NP and its development to modern Norwegian. Although Faarlund does not discuss Modern Icelandic, there are certain similarities between Old Norse and modern Icelandic NP as well as the assumed structure assumed by Faarlund shares certain similarities with the structure assumed here. In this section I will discuss the main points of Faarlund’s analysis as well as some issues, however, some of the discussion will be postponed until section 3.

The structure assumed by Faarlund is a slightly modified version of Julien’s (2005) structure (see below). The noun enters the derivation as a bare stem which is dominated by a head Infl. Inflectional suffixes of the noun are realized on this head. N attaches to Infl via head movement. Genitives are merged as complements to N. The structure will be presented in the simplified manner as in Faarlund (2009) for the sake of clarity. The examples used for the demonstration of the derivation were constructed with reference to Faarlund (2004) and Iversen (1974).
Faarlund’s addition to the structure proposed by Julien is the Reference Phrase which is headed by the definite article. He does not explicitly state whether R is always present or not. In case of the clitic article, N+Infl undergoes head movement to R.

When an adjective is present, the AP is a specifier of an iterative αP (Julien 2005). Following e.g. Cinque’s (1994, 1999) work on adverbs, Julien proposed that in case of multiple adjectives, each AP will be in a specifier position of their respective α and ordering effects of adjectives stem from features of α. When α is present, movement of N+Infl to R is blocked, forcing the appearance of the free prenominal article.
(26) a. (h)inn fólvi hestr       [Old Norse]
art pale horse
the pale horse

b.      
               R                 
             ART
            αP
                             α’
                        AP
                       PALE
                   α
               InflP
               N+Infl
               HORSE+NOM.SG
               NP

This pattern of obligatoriness of the free prenominal article in the presence of prenominal modifiers is preserved across the descendants of Old Norse, aside from Icelandic (and West-Jutlandic (e.g. Hankamer & Mikkelsen 2002:137, fn. 1)).

The impossibility of N+Infl-to-R movement across α follows from standard constraints assumed for head movement. It is not clear, however, what exactly blocks the movement of N+Infl to α, and then a subsequent movement of N+Infl+α to R. α is a phonologically null head, and adjunction of N+Infl to α should in fact not have any effects on phonological shape of the resulting complex head N+Infl+α+R. I will return to this issue in section 3.

Faarlund (2004:73) assumes that numerals hold the same position as adjectives, however, given Faarlund’s (2009) adoption of Julien’s (2005) analysis, they can be inferred to be in a

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9 Hankamer & Mikkelsen (2002, 2005) argue that the definiteness marker in Danish (and Swedish for that matter) citing (among other things) arbitrary morphological gaps in the paradigm where common gender nouns with the suffix -ende (deverbal nouns) do not allow enclitics of the definite article (one of Zwicky & Pullum’s (1983) criteria for affixhood). Börjars & Harries (2008:317) on the other hand, argue that since the gap targets an identifiable set and hence do not count as truly arbitrary. Given that these are deverbal nouns it is also likely that the additional structure of the noun may play a role in this restriction. I will, however set this debate aside for the purposes of this paper.

10 Note, however, that the movement being blocked for Julien (2005:27-30) was a phrasal movement of nP to SpecDP for identification of D. In case of αP intervening, AP becomes the closest goal for D, which cannot identify D. Hence insertion of a determiner or a demonstrative is required.
Cardinal Phrase dominating αP. Either way, numerals are predicted to intervene in the same way. This prediction is borne out in the modern Mainland Scandinavian languages (see e.g. Julien 2005:30). This is not true of Old Norse or modern Icelandic:

(26) a. haglkorn-it eitt [Old Norse adapted from Faarlund (2004:74)]
    hail.grain-art one
    one grain of hail.

    b. bækur-nar þrjár
    books-art three
    the three books

(26a) could, however be taken as evidence that Old Norse had optional Mainland style NP, where any intervening element will necessitate a free standing article or an Icelandic style NP where material intervening between D and N does not necessitate a free standing article. Also given the limitations of the data at hand, it is difficult to fully exclude a clitic article in the presence of an adjective in Old Norse.

Finally, Faarlund assumes that RP is dominated by DP, with demonstratives as its head. The reason for positing two separate heads for articles and demonstratives stems from the fact that the two could be simultaneously present in Old Norse (28a) and to some extent also in modern Icelandic, (28b):

(28) a. þau in stóru skip [Old Norse (Faarlund 2009:627)]
    those the large ships
    those big ships

    b. sá hinn sami
    he the same
    the same one

Given the various assumptions of pronouns structure, namely that pronouns are in fact D’s (e.g. Dobrovie-Sorin & Giurgea 2011 and references cited there), assuming that demonstrative
pronouns are heads is not an unreasonable assumption. However, under Bare Phrase Structure, assuming two separate projections in the extended projection of the noun becomes superfluous. A head that does not project further is simultaneously a head and a maximal projection (Chomsky 1995:5). If demonstratives are simply D’s and hence both minimal and maximal, they can be placed in spec-RP, thus eliminating the need for an additional projection.\textsuperscript{11}

To sum up this discussion, the proposed head movement approaches discussed here do show potential to capture the facts discussed in the previous section. Both Delsing and Sigurðsson rely on N and A to form a complex head. Thus they make false predictions in terms of phonology, word order patterns in Icelandic and possibilities of extractions both in Icelandic and cross-linguistically. Faarlund’s structure for Old Norse, on the other hand, manages to capture many of the facts discussed in section 1, however, setting the theoretical issues aside (which will be discussed further in section 3), he does not offer a comprehensive account of the postnominal sphere.

\textbf{2.2 Phrasal movement analyses}

Both Vangsnes (1999) and Julien (2002, 2005) argue for a mixed head and phrasal movement account of the word order observed in Icelandic definite NPs. Although the two accounts differ in the inventory of projections within the TNP and their motivation, they do agree on the aspects relevant for this paper. Hence, for the sake of brevity, I will not give a separate discussion of either proposal on its own, but instead I will abstract away from the differences that are not relevant for this paper and give a somewhat conflated summary of their proposals.

\textsuperscript{11} An alternative analysis of these examples may be to assume that (28) involves two Ds.
Moving from the bottom up, both Vangsnes and Julien argue that possessors are base generated in spec-NP. The postnominal position is achieved via head movement of N to functional projection(s) dominating NP. Hence under their approach all possessors are generated prenominally but wind up in a postnominal position due to head movement. A surface prenominal position must be achieved via movement. An approximation of the structure is given below:

(29) a. mynd mín af Garpi
    picture my of Garp
    My picture of Garp

b. \[
\begin{array}{c}
\text{FP} \\
\text{NP} \\
\text{Poss} \\
\text{MY} \\
\text{N} \\
\text{PP} \\
\text{PICTURE} \\
\text{OF GARP}
\end{array}
\]

For both Vangsnes and Julien, when it is present, the definite article is generated as a head of FP. So far, both analyses do capture the order of elements in the postnominal sphere.

FP is furthermore dominated by an adjectival phrase (αP for Julien) which is moved to spec DP in definite NPs. AP is dominated by NumP (CardP for Julien), which contains numerals. NumP is in turn dominated by a DP. The derivation of an NP such as gömlu myndírnar mínar þrjár (‘my three old pictures’) would proceed along the lines of the following:
Unlike the approaches of Delsing and Sigurðsson above, with some minor adjustments proposed by Pfaff (2007), these approaches offer the possibility of accounting for the postnominal adjectives discussed in the previous section.

However, once (29) and (30) are put together a serious problem is revealed, i.e. that argument PPs are predicted to follow the A-N to spec DP and should precede numerals in the linear order. This is not the case as is shown below, argument PPs always remain to the right of the numeral in the linear order.

(31) a. gömlu myndirnar mínar þrjár af Garpi
old pictures.art my three of Garp
my three old pictures of Garp

b. *gömlu myndirnar mínar af Garpi þrjár
old pictures.art my of Garp three
Furthermore, Vangsnes and Julien do not discuss the different positions of pronominal possessors and non-pronominal possessors. Hence, under this approach, non-pronominal possessors are predicted to move along with the A and N to spec-DP. This, as discussed above, is not the case:

(32) a. gömlu myndirnar þrjár Jónasar af Garpi
   old pictures.art three Jónas of Garp
   Jónas’ three old pictures of Garp

   b. *gömlu myndirnar Jónasar af Garpi þrjár
      old pictures.art Jónas of Garp three

So, although Vangsnes and Julien offer a way to properly account for the prenominal field, the postnominal field of definite NPs is more or less unaccounted for.

2.3 Roll-up analysis

The final approach that will be discussed in this section is that of Vangsnes (2004). In an effort to account for NPs in Scandinavian without turning to head movement, Vangsnes (2004) proposes a roll-up analysis only using phrasal movement. Vangsnes distinguishes between three types of movement: (i) spec-to-spec movement, (ii) short roll-up, i.e. movement of a complement of X to Spec XP, resulting in suffixation; and (iii) long roll-up, i.e. movement of a complement of X to a specifier position of a YP dominating XP.

Assuming a cartographic type of structure, Vangsnes assumes that nouns are merged as bare stems in N. N then merges with W, which contains inflectional material. The clitic article is merged as the head Ana(phor). These heads are then combined through subsequent short roll-ups. This is shown in (33b). It should be noted that projections not directly relevant to the discussion
at hand will be omitted in the remainder of this section. When a demonstrative is present, it is base generated in spec-AnaP.

(33) a. gömlu myndirnar mínar þrjár af Garpi
   old picture-art my three of Garp
   my three old pictures of Garp

b. AnaP
   Ana’
   Ana THE
   WP
   W’
   W
   NOM.PL PICTURE
   NP

When an adjective is present in the structure, AnaP is dominated by an αP, with AP as its specifier. αP is dominated by nº, which is always present in the structure and may be spelled out as Ø. In case of pronominal possessors, they are merged as heads of nP. Vangsnes does claim that non pronominal possessors are merged as specifiers of nº, however later he claims that genitives are merged in a higher PossP and gives an example of a non pronominal possessor. This position seems to be intended to allow for postnominal genitives. Given that his following discussion makes no allowance for an occupied Spec-nP, I interpret this as an oversight and non pronominal possessives are merged higher. αP undergoes short roll-up to Spec-nP, as is shown below.
One major problem arises from this approach already. Namely that it opens up the possibility of deriving at least one ungrammatical order of elements. If a demonstrative is present, WP won’t roll up to spec AnaP and could remain in situ. This would yield the ungrammatical order given in (35) below.

(35) \text{ADJECTIVE} > \text{DEMONSTRATIVE} > \text{NOUN}^{12}

*rauð-ur/i þessi bíll
red-str/wk this car

Argument PPs (complement PPs in Vangsnes 2004) are merged in a lower specifier position of a split P projection. nP then undergoes long roll-up to the higher specifier position.

---

12 It should also be noted that as pointed out by Željko Bošković (p.c.) that the analysis is also highly problematic from a semantic standpoint, i.e. that the base position of the demonstrative below adjectives yields an uninterpretable result.
It should be noted here that in case of nonpronominal possessors, they would be merged in a lower specifier of a split Poss projection in the same manner as argument PPs above.

Numerals are merged as specifiers to a cardinal projection dominating \(P_2P\). CardP is in turn dominated by a DP. In definite NPs in Icelandic, nP undergoes spec-to-spec movement to spec-DP, achieving the desired word order in (37a). Subsequent projections have been omitted.

\[
\text{(37) } \begin{array}{c}
\text{DP} \\
\text{ D' } \\
\text{ D } \\
\text{ CardP } \\
\text{ THREE Card' } \\
\text{ Card P_2P } \\
\text{ nP } \\
\text{ OLD PICTURE-NOM.PL-THE MY P_2' } \\
\text{ P_2' } \\
\text{ P_1P } \\
\text{ Arg PP } \\
\text{ OF GARP } \\
\text{ P_1'} \\
\text{ \ldots } 
\end{array}
\]

The first problem with this account is that it does not allow for the postnominal adjectives discussed by Pfaff. However that could be remedied through a series of extractions and further remnant movements. That said, however, this approach still overgenerates, allowing for orders such as (35) above as well as extraction of e.g. genitves or demonstratives under spec-to-spec movement.\(^{13}\)

\(^{13}\) In addition to that, a significant body of work has built up over the years showing the need to restrict, not only the distance over which movement can take place, but also how local movement can be (cf. Boblijk & Þráinsson 1998, Grohmann 2000, Abels 2003, Bošković 1994, 2014), proving useful in accounting for extraction out of NP/DPs, PPs etc.
2.4. Summary

To sum up this section, of the previously proposed accounts, although coming close, none fully covered the entirety of the data discussed in section 1. Sigurðsson (1993) manages to account for the postnominal sphere, however makes false predictions regarding the phonological behavior of N and A. Furthermore, it undergenerates with regards to adjective placement and extraction possibilities, both in Icelandic and cross-linguistically.

Vangsnes (1999) and Julien (2002, 2005) with changes suggested by Pfaff (2007), do manage to account for both the prenominal sphere and adjective placement. Neither of them, however account properly for the postnominal sphere, failing to account for the different position of pronominal and non pronominal possessor and argument PPs.

Finally, although Vangsnes (2004) manages to account for the pre- and postnominal spheres, the theory as he presents it does not properly account for different adjectival placements discussed by Pfaff. Furthermore this approach overgenerates.

3. The structure of the Icelandic Noun Phrases

In this section I will outline the proposed structure of the Icelandic TNP. The derivation will be described step by step, from the root upwards, and the motivation behind the assumptions will be given at each step of the derivation. This section is organized as follows. in subsection 3.1, I will outline the proposed structure and some of it’s advantages over the previous approaches. In subsection 3.2, I will discuss some attributes of the Icelandic article. In subsection 3.3, I discuss how the proposal argued for in this paper can serve to explain constraints on synthetic compounding. And finally, in subsection 3.4 I discuss some aspects of extraction out of NPs.
3.1 Building indefinite and indefinite NP

First, following e.g. Marantz (1997), Embick & Noyer (2001, 2007) and Embick (2010), I assume that roots are acategorial and must be merged with a category creating node.

(38) \[
\text{nP} \\
\text{n} \\
\emptyset \\
\sqrt{\text{picture}} \\
\text{mynd-}
\]

Here I will remain neutral with regards to whether roots can take complements or not (see e.g. the discussion in Marantz 2001, 2007), however, I argue that argument PPs must be licensed by a higher node, \( \omega \) (see the discussion in section 3.2). Assuming standard locality restrictions, specifically the PIC (Chomsky 2000, 2001) and whatever licensing argument PPs need is phase-bound, the argument PP must be in the same phrasal domain as \( \omega \) or at the edge of a lower one.

Following e.g. Marantz (2007) and Embick (2010) and many others, I assume that category creating nodes (xºs) are (at least potential) phase heads. Hence argument PPs (ARG) must be no lower than at the edge of this phase, namely at spec-nP as is shown below. I will set aside the question of whether this is a derived position or not.

(39) \[
\text{nP} \\
\text{ARG} \\
\text{af skinku} \\
\text{n} \\
\emptyset \\
\sqrt{\text{picture}} \\
\text{mynd-}
\]

The spell-out domain here only contains the root \( \sqrt{\text{picture}} \) and hence arg is visible to a higher node.
The next step in the derivation is the merging of $\varphi$. There is no intention to argue against late insertion of inflectional features (cf. Halle & Marantz 1993 and others), however, previous work on compounding (Harðarson 2013) indicates that the realization of inflection is contingent on a node that must be present in the narrow syntax. Here, this head will be referred to as $\varphi$.

(40)

$\varphi_P$

\[ \varphi
\]

\[ nP \]

\[ \text{NOM.SG} \]

\[ \text{ARG} \]

\[ af\ skinku \]

\[ n \]

\[ \sqrt{\text{PICTURE}} \]

\[ \emptyset \]

\[ \text{mynd-} \]

Drawing on e.g. Grohmann (2000), the TNP is assumed to consist of two phasal domains, i.e. categorial and agreement domains.\(^{14}\) The merger of $\varphi$ marks the end of the categorial domain and the start of the agreement domain. Hence the categorial domain (nP) is closed off at this point (i.e., it constitutes a phase). $\varphi$ is not a phase at this point, and, as will be clear below, won’t be. As will be argued in more detail below, the topmost projection in each of these domains constitutes a phase.

The next step in the derivation involves the adjunction of possessive (POSS) to $\varphi_P$ (see below for motivation). Following Julien (2005), I assume that all POSS are merged in a lower position and prenominal POSS have been fronted to spec-DP.

\(^{14}\) However, as will become clear in section 3.4, the TNP may ultimately consist of only a single phase.
The following step involves the merger of the head \( \omega \), which contains information relating to reference and is responsible for the licensing both \( \text{ARG} \) and \( \text{POSS} \) via reverse agree (Wurmbrand 2011, 2012a,b,c, To appear). This head takes over, for the most part the roles assigned to both Julien’s (2005) \( \alpha \) and Faarlund’s (2009) \( R \). Adjectives are merged in \( \text{spec-}\omega \P \).

Finally, I assume that numerals (NUM) are adjoined to \( \omega \P \) and the root undergoes head movement to \( \omega \) via \( \varphi \), yielding a complex head \( [[[\sqrt{\text{PICTURE}}]+\text{NOM}.SG]+\omega] \). This complex head will

\[\text{(41)}\]
\[
\begin{array}{c}
\varphi \P \\
\text{POSS} \quad \varphi \P \\
\text{Garps} \\
\varphi \\
\text{NOM}.SG \\
\text{ARG} \\
\text{af skinku} \\
n \\
\emptyset \\
\sqrt{\text{PICTURE}} \\
\text{mynd-}
\end{array}
\]

\[\text{(42)}\]
\[
\begin{array}{c}
\omega \P \\
\text{AP} \\
\text{frægar} \\
\omega \\
\varphi \P \\
\text{POSS} \\
\text{Garps} \\
\varphi \\
\text{NOM}.SG \\
\text{ARG} \\
\text{af skinku} \\
n \\
\emptyset \\
\sqrt{\text{PICTURE}} \\
\text{mynd-}
\end{array}
\]

\[^{15} \text{It is also possible that} \omega \text{ is involved with double definiteness in the North Germanic languages aside from Icelandic and Danish (see e.g. Vangsnes 1999; Julien 2003 and Faarlund 2004, 2009 for analyses of double definiteness in that vein). That does fall beyond the scope of this paper and will be set aside for now.}\]
henceforth be referred to as $N$. The full structure of the Icelandic indefinite TNP is as shown in (43a).\(^{16}\)

(43) a. 

```
(43a) NUM prjár AP frægar ω'
    |       |       |
    ωP    ωP
    |
    φP   φP
    |
    φ   φ
    |
    nP
    |
     n'
     PICTURE
     mynd- n'-ir
    NOM.PL
```

b. prjár frægar myndir Garps af skinku
three.nom famous.nom pictures.nom Garp.gen of ham.dat
Garpur’s three famous pictures of ham

Unlike the other North Germanic languages, Icelandic has not developed an indefinite article. This is taken here to indicate that in indefinite TNPs, there is no D projection dominating $ωP$. $ω$ is then the highest head in the agreement domain and under a contextual approach to phasehood (e.g. Bobaljik & Wurmbrand 2005, 2013; Bošković 2005, 2012a, 2014; Wurmbrand to appear, 2013a,b), $ω$ is a phase.

In definite NPs, D is merged with $ωP$. $ω$ is no longer the highest head in the agreement domain, and hence not a phase. The additional structure opens up the possibility for TNP-internal movement. Building on the structure presented above, the structure of Icelandic definite TNPs is

\(^{16}\) There is of course the question of timing of head movement which is not addressed here. Following Matushansky (2006), head movement would have to occur immediately following the merging of a subsequent head. This is however not directly relevant to the discussion.
as shown below. In case of the cliticized article, I assume that \( N \) undergoes head movement to \( D \) (cf. Sigurðsson 1993, Delsing 1993, Lohrmann 2011). Again, the complex head has been simplified to \( N \).

(44)  
\[
\begin{align*}
\text{DP} & \quad \omega \alpha \\
D & \quad \omega \alpha \\
N & \quad \text{mynd-ir} \\
D & \quad \text{nar} \\
\text{NUM} & \quad \text{þrjár} \\
\omega \alpha & \\
\text{AP} & \quad \text{freðgu} \\
\omega' & \\
\Lambda & \\
\phi \alpha & \\
\text{Garps ... af skinku}
\end{align*}
\]

Bošković (2012), citing Partee (2006), discusses a difference in the interpretation of possessors between English and Chinese, namely that in the case of a prenominal possessor, English NPs involve an exhaustivity presupposition, whereas Chinese does not. The lack of exhaustivity presupposition is argued to be a result of Chinese lacking a DP. If the exhaustivity of possessive constructions is contingent on the presence of \( D \), indefinite NPs lacking DP makes the prediction that possessors in indefinite should not induce an exhaustive presupposition. This prediction is borne out. Compare the indefinite possessive construction in (45) to the definite possessive constructions in (46).

(45)  
\( \text{þrír bílar Jónasar eru í bílskúrnum. Hann á tvo aðra í geymslu.} \)  
Three cars Jónas.gen are in garage.art he owns two others in storage

Given the word order variations noted in section 1, it is clear that the enclitication of the article is not a post syntactic movement operation (cf. Embick & Noyer 2001, Embick 2010) since it would violate the strict locality restrictions of such operations other than lowering. As is clear from the data that has been presented here, this is not a case of lowering.
There is no exhaustivity presupposition in (46), however, it is present in all three examples in (47). The difference in interpretation between (46) and (47) thus supports the claim that the former lacks DP, whereas the latter involve a DP.

As mentioned in section 1, in an indefinite NP, the order of elements is rigid. Generally, POS are postnominal in Icelandic (see discussion is section 1), but it is possible to front POS in some instances. In case of a fronted POS, an adjective receives weak declension, (47b), whereas in case of a postnominal POS the adjective receives strong declension, (47a). Strong declension is incompatible with a fronted POS as is shown in (47c).

(47) a. rauður bíll Jónasar   b. Jónasar rauði bíll   c. *Jónasar rauður bíll
     red.st  car Jónas.gen   Jónas.gen red.wk car   Jónas.gen red.st car
     Jónas’ red car       Jónas’ red car       Jónas’ red car

The same pattern is observed in the other North Germanic languages (Julien 2005:200).
If we take the weak declension to be conditioned by the presence of D,\textsuperscript{18} the pattern in (45) follows from the proposal here. When D is absent, POSS is immobile due to anti locality restrictions (e.g. Bošković 2005 among others). \(\omega\) is a phase in indefinite NPs and POSS, being an adjunct, cannot move to spec-\(\omega\)P since it would only cross a segment of a phrase, and not a whole phrase. An additional DP layer allows movement of \(\varphi\)P-adjoined phrases to spec-DP since crossing the maximal projection \(\omega\)P avoids an antilocality violation. Therefore, movement of POSS, as in (45b), is only possible in definite TNPs, as evidenced by the weak declension of the adjective in (45b) and the ungrammaticality of the strong declension in (45c).

3.2 Possible and impossible word orders.

Generally, when \(N\) moves to \(D\), AP is also moved to spec-DP. However, as discussed in section 1, this movement is not entirely obligatory. As discussed by Pfaff (op. cit), when AP is fronted, readings corresponding to Cinque’s (2010) Indirect Modification are generally obtained. When AP remains in situ, readings corresponding to Cinque’s Direct modification are generally obtained. Adjectives that are, e.g. inherently non-intersective must remain in situ as in shown below (see also (8-10) above).

\textsuperscript{18} The presence of D does not necessarily entail definiteness, as discussed e.g. by Julien (2005:247-249) for Norwegian and Icelandic and Práinsson (2007:317-327) for Icelandic. Even though NPs can be formally definite they are not necessarily semantically definite as is evidenced by the fact that formally definite NPs can be used in existential constructions (see further discussion in Práinsson 2007 and references cited there):

\begin{equation}
(i) \quad \text{það háföi þessi risastóra fluga verið í súpunni. (Práinsson 2007:321)}
\end{equation}

\(\text{There had been this gigantic fly in the soup.}\)

Hence the weak declension of the adjective cannot be said to be conditioned by definiteness per se. I will therefore simply state that the weak declension is conditioned by the presence of D rather than stipulating a particular feature.
Given the antilocality constraints assumed in this paper, movement of AP requires APs to be a specifier of $\omega$ rather than an adjunct. If AP were an adjunct, it would be adjoined to a phrase directly below D, which is a phase. AP would not cross a whole phrase moving to DP, violating antilocality. Here, the fronting of the adjective is taken to be movement of AP to spec-DP.

Given the difference in availability of readings under the different positions of the adjective, fronting of the adjective is taken to be independent of N-to-D movement. I leave open the question of what exactly motivates this movement, but it appears that this movement is motivated by semantic factors (see Pfaff to appear for a more detailed discussion). One approach would be to assume that movement, like scrambling in Germanic, is freely available, but the...
different positions of adjectives have interpretive effects. Furthermore, if moved APs are necessarily interpreted via predicate modification (e.g., it could be assumed that APs actually adjoin to DP rather than moving to Spec,DP), it follows that APs which are non-intersective cannot occur in moved position. Since non-intersective adjectives can only be interpreted in $\omega_P$, this property could contribute to our understanding of the semantics of $\omega$, which, however, I cannot further develop in this article.

This accounts for the possible and impossible orders of elements in the prenominal field shown in (8) above, and repeated below.

(8) a. ADJECTIVE > NOUN-ARTICLE > NUMERAL
goðu bækur-nar þrjár
good books-art three
the three good books

b. NOUN-ARTICLE > NUMERAL > ADJECTIVE
bækur-nar þrjár goðu
books-art three good

c. ADJECTIVE > NUMERAL > NOUN-ARTICLE
*goðu þrjár bækur-nar
good three books-art

d. NUMERAL > ADJECTIVE > NOUN-ARTICLE
(*Þrjár goðu bækur-nar
three good books-art

Whenever the article is enclitic, the only two orders of elements in a non partitive reading are the ones where the adjective is fronted, (8a) or remains in situ, (8b). The ungrammaticality of (8c-d) follows from two aspects of the assumptions made in this paper. (i) The enclitic article always involves movement of N to D. Hence (8c) cannot be formed by fronting only the adjective. (ii)
Movement of NUM is blocked via the antilocality constraints assumed and so any movement of NUM is ruled out.

Finally, pronominal possessors always follow N. In definite NPs when N moves to D past a numeral, a possessive pronoun follows N across NUM, whereas NP possessors must stay in situ. This movement is obligatory. The proprial article remains with the possessor.

(50) a. frægu myndímnar {*Garps} þrjár {Garps} af skinku
   famous pictures.art Garp.gen three Garp.gen of ham
   Garpur’s three famous pictures of ham

   b. frægu myndímnar {mínr} þrjár {*mínr} af skinku
   famous pictures.art my three my of ham
   My three famous pictures of ham

   c. frægu myndímnar {hans} þrjár {*hans} af skinku
   famous pictures.art he.gen three he.gen of ham
   his three famous pictures of ham

There are two possible derivations of this distribution. One is to assume phrasal movement of a constituent containing A, N, and the pronominal possessor. This approach would of course require major revisions of the structure to avoid the issues observed with previous phrasal movement accounts, namely that ARG could not be a part of this constituent. One major issue with that account is that possessors, even pronominal possessors, must c-command ARG in the postnominal position. A possible solution to that problem would be along the lines of Pfaff (2007, 2009) as discussed in section 2.2. However this approach revives the issue of combining the fronting of A and N, which has been argued to be two separate movements.

Another more promising option would be to assume that pronominal possessors undergo m-merge, i.e. adjunction to an adjacent head forming a complex head (Matushansky 2006), N, prior to N-to-D movement, similar to the approach taken in Sigurðsson (1993). This of course
brings back the issue of the order of elements mentioned in section 2.1. Namely that it predicts that the order of elements be $N > \text{POSS} > \text{ART}$. This could, however be remedied via post-syntactic rearrangement within the complex head, such as local dislocation (Embick & Noyer 2001, Embick 2007). This alternative allows us to maintain the separation of $N$-to-$D$ movement and the fronting of adjectives as well as accounting for the relation of elements in the postnominal sphere without having to resort to dislocation of $\text{ARG}$.

A variation of the latter option would be that pronominal possessors are in fact in $\varphi$. They would then always be picked up by $N$ on the way to $\omega$ and no additional processes would be needed to account for (50). This approach would, however be problematic given that possessive pronouns can be fronted as well as NP possessors. Note also, as was mentioned before, that this fronting only occurs in definite NPs, i.e. DPs as is evidenced by the adjectival inflection, see (47) above.

(51) a. mínir þrir bílar   b. þínir þrir bílar   c. hans þrir bílar
    my three cars     your three cars     his three cars

If $N$ were always to pick up pronominal possessors on its way to $\omega$, the only way to account for (51) were to appeal to excorporation, which is disallowed by standard constraints on head movement (see e.g. Matushansky 2006 and references cited there). With that in mind I assume that pronominal possessors are either adjoined to $\varphi P$ or potentially in spec-$\varphi P$.

### 3.3 $\omega$ and licensing of arguments

In section 3.1, I have mentioned, but not motivated yet, that PP-modifiers of the noun need to be licensed by $\omega$. This sections provides evidence for this assumption. A significant source of
arguments for modifiers being contingent on $\omega$ comes from synthetic compounds. Synthetic compounds are compounds where the head is a deverbal noun and the modifier corresponds to either an internal argument, (52), or an adverbial modifier (53) (Roeper & Siegel 1978).

(52) a. truck driver     cf. drive a truck
    b. head movement     cf. move a head
    c. bread baker       cf. bake bread
    d. rice cooker       cf. cook rice

(53) a. quick-acting     cf. act quickly
    b. fast-falling      cf. fall fast
    c. snappy-looking    cf. look snappy
    d. light stepping    cf. step lightly

(taken from Harley 2009)

Synthetic compound differ from primary compounds (root compounds) in the complexity of right branching structures: while a primary compound has a (potentially) infinitely complex right branching structure, synthetic compounds can have at most one modifier (Selkirk 1982, Lieber 2004).

(54) a. child camel jockey
    b. crocodile nurse shoes

    b. *book shelf stacker       cf. shelf stacker

(Peter Smith p.c.)

Under Harley’s (2009) approach, the formation of a synthetic compound involves head movement of an argument and head-adjunction to the head of the compound as is shown below.
(56) a. truck driver

  b. 

One problem comes up with this approach, i.e. unlike other forms of head movement, synthetic compounding does not allow stranding of PP modifiers (McIntyre 2009).

(57) a. *name choice ___ of my child  
  b. *head movement ___ of a VP  
  c. *name choice bad ___  
  d. *head movement big ___

Other instances of head movement, such as verb movement (e.g. Pollock 1989, Bobaljik & Þráinsson 1998) freely strand modifiers. Compare to (58a) where the main verb has moved, leaving behind both an adverb, *alltaf*, and the object, *skinku*, to (58b) where the main verb is in situ.

(58) a. Garpur **borðar** alltaf ___ skinku.
    Garpur eats always ham
    Garpur always eats ham.

    b. Garpur hefur alltaf **borðað** skinku.
    Garpur has always eaten ham
    Garpur has always eaten ham

---

19 It should be noted that under Harley’s approach *driver* is never a verb at any point in the derivation. The question of whether that is the case or not falls outside the scope of this paper. So does the question of whether roots take complements, as they do in (55). Whatever the ultimate answer to these questions may be, this approach is easily adjusted to the proposal in this paper.
Another example of modifiers being stranded by head movement, is incorporation (Baker 1988).\textsuperscript{20} In (59a) a demonstrative pronoun has been stranded and in (60a) a possessive.

**Mohawk**

(59) a. ka-\textbf{nuns}-rakov thikv __  
3N-house-white that  
That house is white.  

b. ka-huʔsyi [thikv ka-\textbf{hyatuhrs-aʔ}]  
3N-black that pre-book-suf  
That book is black  
(Baker 1988:125)

**Greenlandic Eskimo**

(60) a. \textbf{Tuttu}-p neq-itor-punga  
reindeer-er meat-eat-indic/1sS  
I ate reindeer’s meat.  
(Sadock 1980 cited in Baker 1988:129)

b. [\textbf{tuttu}-p neqaa-nik] neri-vunga  
reindeer-erg meat-instr eat-indic/1sS  
I ate reindeer’s meat  
(Baker 1988:129-130)

The general intuition in the literature on compounding has been that non-head elements are deficient in some way (e.g. Bloomfield 1933, Allen 1978, Harley 2009). They are often missing inflectional suffixes, which has led to the rather persistent myth that non-head elements in compounds cannot contain inflectional material. There are however languages that allow inflectional material on non-head elements in compounds (e.g. Warren 1978, Bauer 2009, Hardarson 2013 and references cited therein). Non-head elements are generally non-referential (Lieber 2005), and if we take the deficiency of non-head elements to be a structural deficiency,

\textsuperscript{20} Though arguably so. See e.g. Mithun 2010 for some arguments for incorporation being perhaps more related to primary compounding.
this would mean that non-head elements are missing the head \( \omega \). Under the approach taken here, the contrast between (71) and (73-74) follows from the absence of \( \omega \). First, numerals modify \( \omega \). If \( \omega \) is absent, there is no place to merge numerals and adjectives. Furthermore, if \( \omega \) licenses arguments, its absence also explains why arguments cannot be stranded. This is shown with a simplified derivation of *truck driver* below.\(^{21}\)

(61) a. truck driver

\[
\text{b. } \begin{array}{c}
\text{n} \\
\text{nP} \\
\text{vP} \\
\text{v} \\
\sqrt{\text{P}} \\
\sqrt{\text{DRIVE}} \\
\sqrt{\text{TRUCK}}
\end{array}
\]

Incorporated nouns can be referential (Baker 1988) and thus contain \( \omega \). Hence selectional requirements for numerals and adjectives are met as well as licensing of arguments. A simplified partial derivation for (60a) is given below.

\(^{21}\) \( \phi \) is omitted here since English generally does not allow inflectional material on non-head elements in compounds.
Thus it is possible to strand modifiers in case of noun-incorporation, but not synthetic compounding.

In the same vein, the resistance to complex right branching structures can be explained. The structure necessary for the merger/licensing of a second internal argument (cf. Larson 1988, 1990; Pesetsky 1995; Harley 2002) is also missing from the nominalization.

To sum up this subsection, although the structure of non-head elements in compounds is, in principle large enough to host arguments, they crucially lack \( \omega \) and hence the arguments are not licensed.

### 3.3 Extraction and ellipsis.

The final argument in favor of the structure proposed comes from the availability of extraction of NP internal PPs. In this section I will first discuss the argument-adjunct distinction observed regarding the availability of extraction. Following that I will discuss extraction from NPs headed
by nominalized N and definite NPs. Lastly, I will provide potential further evidence for the approach in this article based on ellipsis.

### 3.3.1 Extraction

NP-internal PPs in Icelandic show an argument-adjunct asymmetry as has been observed for PPs in other languages (e.g. Chomsky 1986, Schütze 1995 and references therein). Preposition stranding and pied piping are in free variation when it comes to A’-movement (see e.g. Maling and Zaenen 1985, Bráinnson 2007:153-154, 345-347), as is evidenced by the following.

(63) a. **Hvað** ert þú að tala **um** __?
   what  are  you  to  talk  about
   What are you talking about?

   b. **Um** **hvað** ert þú að tala __?
   about  what  are  you  to  talk

Hence it is expected that, at least, if pied piping is possible, P-stranding should be possible.

Extraction of argument PPs as well as out of argument PPs apply freely, as is shown below.

(64) a. **Hverjum** sást þú mynd **af** __?
   who   saw  you  picture  of
   Who did you see a picture of?

   b. **Af** **hverjum** sást þú mynd __?
   of  who   saw  you  picture
   Of whom did you see a picture?

Under the structure and locality restrictions assumed in this paper, this is expected. ARG (or its complement) moves from spec-nP to spec-ωP, crossing φP, in accordance with the assumed antilocality constraints.
In case of adjunct PPs, P-stranding is marginally better than pied piping (see also Bošković 2012, 2013), as is shown in (66) and illustrated in (67).

(66) a. ??hvāð sást þú mann með__?
   what saw you man with
   What did you see a man with?

   b. *Með hvāð sást þú mann__?
   with what saw you man
   With what did you see a man?

(67) a. ??
   ωP
   ω
   MAN

   φP
   φ
   nP
   WITH WHAT
                     ...

   b. *
   ωP
   ω
   MAN

   φP
   φ
   nP
   WITH WHAT
                     ...

   PP

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Assuming that adjunct PPs are right adjoined to φP, the impossibility of (66) is expected. Pied piping is ruled out due to an antilocality violation and preposition stranding yields a degraded result but is less degraded than pied piping (consistent with Bošković 2013:79-80). Extraction out of adjuncts being a less severe violation than movement of adjuncts themselves is a well known effect in the literature (see e.g. Chomsky 1986: 32ff and many others). The approach taken here adds another empirical domain to this phenomenon which still awaits a satisfactory answer.

Furthermore, the analysis proposed in this article, also derives the relative order of adjunct PPs and ARG. ARGS are merged in spec-nP, lower in the structure than the right adjoined adjuncts, hence ARG should precede adjuncts once linearized. This is illustrated in (68).

(68) a. mynd af Astrid frá Ísafjörður
   picture of Astrid from Ísafjörður
   a picture of Astrid from Ísafjörður

b. *mynd frá Ísafjörður af Astrid
   picture from Ísafjörður of Astrid

c. 
   \[
   \omega \rightarrow \phi \rightarrow PP \rightarrow nP \rightarrow n' \rightarrow \text{PP of Astrid} \rightarrow n \rightarrow \text{picture}
   \]
Assuming that DPs do not c-command out of (adjunct) PPs, the structure also correctly predicts that Binding, however, points to a potentially more complicated structure, since neither the adjunct nor the argument can bind the other.

(69) a. *mynd [af mömmu sinni] [frá hverjum nemandar]  
    picture of mom self’s from each student  
    a picture from every student of their mom

   b. *mynd [af hverjum nemandar] [frá mömmu sinni]  
    picture of each student from mom self’s  
    a picture of every student from their mom

In case of nominalizations, neither pied piping nor P-stranding is possible, as is shown below with the nominalization *greining* (‘analysis’), which is formed of the verb *greina* (‘analyze’) with the nominalizing suffix *-ing*.

(70) a. ?*Hverju syrgir þú greiningu á __?  
    what lament you analysis on  
    Analysis of what do you lament?

   b. *Á hverju syrgir þú greiningu __?  
    on what lament you analysis  
    Analysis of what do you lament?

The unavailability of P-stranding can be explained under the approach taken in this paper. I preliminarily assume that in such nominalizations, ARG is base generated as a specifier of a vº below nº. Consider the following structure.
Assuming that all x₀'s are phases, if ARG were to remain in situ, it would not be visible to ω under the PIC (since nP is a phase). ARG can therefore not be θ-licensed in this position by ω. However, ARG being a verbal argument could instead be licensed by v₀ rather than ω, assuming that once a complex head has been created, syntax sees the complex head as a single bundle of features (see e.g. Matushansky 2006 and references cited there). The root undergoes head movement, as usual, to ω as is shown in (71). First the root moves to v and then subsequently to n. At this point, the complex head $\sqrt{\text{ANALYZE} + v + n}$ c-commands ARG. ARG is visible to $\sqrt{\text{ANALYZE} + v + n}$ and can therefore be licensed by it instead of ω. ARG therefore remains within the verbal domain and cannot be extracted.

Finally, extractions out of definite NPs is blocked regardless of the position or type of the PP, as is shown below for ARG, adjunct and an ARG of a deverbal noun.

(72) a. *Hverjum sást þú myndina af __?
    who saw you picture of
    Who did you see a picture of?

    b. *Af hverjum sást þú myndina __?
       of who saw you picture
       Of whom did you see a picture?
The above restriction shows that definite DPs are islands for extraction, independent of the internal structure of the DP. Thus, although the addition of the DP layer would in principle open the possibility for various extractions not possible in indefinite NPs, extraction out of definite DPs is blocked independently (presumably to some extent by semantic factors; cf. Fiengo & Higginbotham 1981, Davies & Dubinski 2003). However more data and research is needed before proper conclusions can be drawn.

3.3.2 Ellipsis

NP-internal ellipsis also appears to support the proposal developed in this paper. It should be noted however that the data presented here is preliminary and there appears to be some variation between speakers. More testing will be needed before more concrete conclusions can be drawn from the data. I will discuss ellipsis in picture NPs, then nominalizations and finally, NPs with adjunct PPs and different options of ellipsis in definite and indefinite NPs. I will be assuming
that ellipsis is phase-bound (e.g. Wurmbrand 2011, 2012a,b,c, 2013a, To appear, and Bošković 2014 and references cited there).

Starting at the lower end of the structure, in case of an indefinite NP containing the elements N-POSS-ARG, only POSS survives ellipsis. As above, the options appear to be the same regardless of whether the POSS is a possessor, agent or a theme.

(75) Hvor finnst þér betri: mynd Péturs af Jóni eða mynd Sverris af Jóni?
which feel you better picture Pétur-gen of Jón-dat or picture Sverrir-gen of Jón-dat
‘Which one do you like better, Peter’s picture of John or Sverrir’s picture of John?’

a. __ Sverris __
b. * __ Sverris af Jóni

The same occurs in definite NPs as is shown in the following example. As before, the propricial article has been omitted.

(76) Hvor finnst þér betri: myndin Péturs af Jóni eða mynd Sverris af Jóni?
which feel you better picture.the Pétur-gen of Jón or picture Sverrir-gen of Jón
‘Which one do you like better, Peter’s picture of John or Sverrir’s picture of John?’

a. __ Sverris __
b. * __ Sverris af Jóni

This can be explained (following Bošković 2014) as a full phrasal ellipsis of nP. ARG, being in spec-nP, is a part of the phrase targeted for ellipsis and should not survive. This is shown below (note that this will be revised below):
As discussed by Bošković (2014), ellipsis marking freezes the marked phrase for any further syntactic processing. The root and n are hence not moved to φ. POSS, being adjoined to φP is outside the domain marked for ellipsis and thus survives. The question, however arises as to why φ is not phonologically realized. For the purposes of this paper I will assume that since $[\sqrt{\text{ROOT}} + n]$ does not move to φ, that φ is lowered post-syntactically to the structure to be elided and hence not phonologically realized.

An alternative would be to assume that ellipsis is targeting complements of phases, or spell-out domains (SOD) (see Gengel 2006, 2009, Gallego 2009, Van Craenenbroeck 2010, Rouveret 2012, Wurmbrand 2011, 2012a,b,c, 2013a, To appear). If that is the case, deletion would target φP (recall that the top projection of the TNP, in this case ωP, is a phase). To account for stranding of POSS, POSS is then either raised to or merged in ωP in order to escape deletion. Movement of POSS would lead to an antilocality violation, which is remedied by ellipsis (cf. Bošković 2005, 2011, 2012b Riquer 2013). Moving forward, it does seem that the evidence supports this latter alternative.\footnote{Here I remain neutral to the question of whether n is a phase in this context. Under the structure assumed, ellipsis targeting complements of phases could explain the data in (86). However, assuming that ωP consists of only a single phase could explain the fact that ARG never survive ellipsis in (75-76). More research is needed before these two alternatives can be teased apart, so I will leave that for further research.}
In case of nominalizations, ARG is even lower than ARG of picture NPs, and it is therefore predicted to not survive nP ellipsis. This prediction appears to be borne out, as is shown by the following examples.

(78) Hvor er eldri: greining Jóns á forsetningastrandi eða greining Péturs á nafnliðaformgerð
which is older analysis Jón-gen on P-stranding or analysis Pétur-gen on NP-structure
‘Which one is older, John’s analysis of P-stranding or Peter’s analysis of NP-structure?’

a. __ Péturs __
b. *__ Péturs á forsetningastrandi

(79) Hvor er eldri: greining Jóns á forsetningastrandi eða greining Péturs á nafnliðaformgerð
which is older analysis Jón-gen on P-stranding or analysis Pétur-gen on NP-structure
‘Which one is older, John’s analysis of P-stranding or Peter’s analysis of NP-structure?’

d. __ hans Péturs __
e. *__ hans Péturs á forsetningastrandi

As was discussed regarding (74) above, adjunct PPs are assumed to be adjoined, at least as high as φP. They are hence predicted to survive nP ellipsis. As is shown below, this is possible. However, a more puzzling fact is that it is possible to elide the adjunct as well. Recall that I proposed that adjuncts are adjoined to φP, hence in such cases, deletion must apply to φP.

(80) Hverju ýndir þú: mynd Péturs frá Ísafirði, mynd Jónas frá Ísafirði
which lost you picture Peter.gen from Ísafjörður, picture Jónas.gen from Ísafjörður

or picture Astrid.gen from Akureyri
‘Which did you lose: Peter’s picture from Ísafjörður, Jónas’ picture from Ísafjörður or Astrid’s picture from Akureyri?’

a. __ Jónasar __
b. __ Jónasar frá Ísafirði
Which did you lose: Peter’s picture from Ísafjörður, Jónas’ picture from Ísafjörður or Astrid’s picture from Akureyri?

d. __ hans Jónasar __
e. ?__ hans Jónasar frá Ísafirði

Allowing flexible positions for adjuncts will capture (80-81), where a lower adjunction will be included in the ellipsis site (i.e. φP), whereas a higher position allows for the adjunct to survive ellipsis. However, further data and research will be needed to fully account for these facts.

Under the structure assumed, it is expected that adjectives, which are assumed to be generated in the specifier of ωP, survive ellipsis in indefinite NPs. That prediction is borne out.

(82) Keyptirðu lágt kringlótt borð eða hátt ferkantað __?
ought.you low round table or high square
Did you buy a low round table or a tall square one?

However, in the presence of any prenominal material, whether an adjective or a numeral, a possessor does not survive. Under the assumption that ellipsis targets SODs, this will follow if prenominal modifiers and POSS compete for a position in ωP. A full phasal ellipsis would require φP to be a phase (unless, as suggested in Bošković 2014, both phases and SODs can be elided). This is shown in (84) below.

(83) a. *Sóttirðu lágt borð Péturs eða kringlótt __Sverris
fetched.you low table Peter.gen or round Sverrir.gen
Did you fetch Peter’s round table or Sverrir’s round one?

b. *Sóttirðu þrjú borð Péturs eða tvö __Sverris
fetched.you three table Peter.gen or two Sverrir.gen
Did you fetch Peter’s round table or Sverrir’s round one?
Adjuncts, however, can survive ellipsis freely in the presence of an adjective, which contrasts with (80-81) above, where in the presence of a possessor, an adjunct can survive, but with some degree of awkwardness.

(85) Týndirðu frægri mynd frá Ísafirði eða svarthvitri __ frá Kópavogi
Did you lose a famous picture from Ísafjörður or a black and white one from Kópavogur?

Assuming that POSS must raise to ωP in order to survive ellipsis, (83) points to POSS having to compete with APs and numerals for the position. Right adjoined elements, however are not affected by these elements, as is shown in (85). Regarding the contrast between (81), where the survival of the adjunct is marked, and (85), where it is not, may be due to the adjunct also having to move. As discussed above, adjunct PPs are adjoined to φP, hence it could be said that moving both elements is marked, leading to the degradation of (80b), whereas movement of just one element is not, hence the (85) is not degraded. The details of what may lay behind these facts are not clear at this time and so I leave them for further research.

The final set of examples to be mentioned are the following where only the noun itself has been omitted. The same pattern is observed with picture NPs, nominalizations and also in case of adjunct PPs.
This pattern might be explained by either of the following two alternatives. On the one hand, it might be possible to assume a null N (see e.g. Bošković 2013:12-13 and references cited therein). On the other hand, assuming n is a phase (that is, no phase extension takes place), it is possible that the root as a complement of n is marked for ellipsis. Which ever alternative will be chosen, it remains to be explained why φ does not get phonologically realized. If we assume that a root marked for ellipsis/null root can still undergo head movement, we could state a requirement that if a host is not phonologically realized the inflection is not phonologically realized either (see e.g. Lasnik 1990, Saab & Lipták 2014:25ff and references cited there for some examples of such accounts).

3.3.3 Summary

To sum up this section, evidence from extraction and preliminary data on ellipsis appear to lend support to the structure proposed in this paper. Extraction possibilities follow from locality constraints. Assuming Ellipsis is phase (or spell-out) bound, the data discussed here corroborate the approach as well, but it is clear that more data and research is needed.
4. Conclusions

To sum up, in this paper I have argued for a split NP analysis, where the traditional NP has been split into three projections. Using this analysis, I proposed an account of the Icelandic NP and the variation observed in the definite NP. This account correctly separates the fronting of adjectives and N, and allows for a degree of optionality not taken into account in previous analyses. Furthermore I argued that this account could extended to explain certain limitation to synthetic compounds, extraction from NPs and the distribution of ellipsis.

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