

6-13-2017

Cycling Through Grammar: On Compounds, Noun Phrases and Domains

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Cycling Through Grammar: On Compounds, Noun Phrases and Domains

Gísli Rúnar Harðarson, PhD

University of Connecticut, 2017

In this dissertation, I address the question of domains within grammar: i.e. how domains are defined, whether different components of grammar make references to the same boundaries (or at least boundary definers), and whether these boundaries are uniform with respect to different processes.

I address these questions in two case studies. First, I explore compound nouns in Icelandic and restrictions on their composition, where inflected non-head elements are structurally peripheral to uninflected ones. I argue that these effects are due to a matching condition which requires elements within compounds to match their attachment site in terms of size/type.

Following that I explore how morphophonology is regulated by the structure of the compound. I argue for a contextual definition of the domain of morphophonology, where the highest functional morpheme in the extended projection of the root marks the boundary. Under this approach a morphophonological domain can contain smaller domains analogous to phases in syntax. This allows for the morphosyntactic structure to be mapped directly to phonology while giving the impression of two contradicting structures.

I also explore the Icelandic noun phrase from this perspective. I take the structure of the noun to mirror the structure of the noun phrase and explore the placement of modifiers within the noun phrase and how different orders can be derived. I furthermore explore domains within the noun phrase through ellipsis and extraction. I argue that domains within the noun phrase are determined in the same way as domains within the noun, i.e. contextually, and appear to line up with the noun-internal domain definers.

Cycling Through Grammar: On Compounds, Noun Phrases and Domains

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A Dissertation

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

at the

University of Connecticut

2017

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2017

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APPROVAL PAGE

Doctor of Philosophy Dissertation

Cycling Through Grammar: On Compounds, Noun Phrases and Domains

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Acknowledgements

This has been a long journey. So many have lent me a hand in getting to the end that listing everyone seems like an almost impossible task. At least it runs the risk of getting quite long. But let's give it a shot.

To start before the beginning, I had to get to UConn somehow, and there I owe a debt of gratitude to my advisor at the University of Iceland, Jóhannes Gísli Jónsson, who saw potential in me and helped me take my first steps into the world of academia. I am also grateful to Höskuldur Práinsson and Þórhallur Eypórsson, who certainly did their part in kicking me out of the nest.

With prehistory out of the way, starting with my committee I am indebted to my advisors, Susi Wurmbrand and Jonathan Bobaljik who guided me through all aspects of academic life. They patiently dove into the weird, confusing data with me but made sure I came up for air, took a look at the bigger picture and put the work into context. They worked tirelessly to ensure that the work was presented clearly and the argumentation was solid, working through countless iterations and drafts. I still cannot fathom how quickly Susi would get back to me with insightful, in-depth comments. I'm pretty sure she has a time machine. Željko Bošković was somehow always enthusiastic and always had something new to say. Finally, Andrea Calabrese not only provided solid academic advice and stimulating discussions, but also conjures up a feast like no other. I promise I'll start working on Sanskrit soon.

I would also like to thank William Snyder for many useful discussions on compounding. Thanks also to Jon Gajewski and Magdalena Kaufmann for making sure I did not forget about semantics. Thanks to Jon Sprouse who taught me a great deal about experimental methods. Finally, thanks to Ian Roberts and Tammy Stark for their interesting feedback and discussions.

I would like to thank the program assistants Catalina Ritton and Tamara Cohen for their help in navigating the bureaucratic wilderness.

Through the UConn Linguistics Colloquium Series I have had the privilege of discussing my work with a great number of researchers who provided valuable feedback on various components of this work at various stages. Listed in alphabetical order they are Klaus Abels, Mark Aronoff, Mark Baker, Chris Collins, Heidi Harley, Paul Kiparsky, Ruth Kramer, Julie Legate, David Lightfoot, Alec Marantz, Glynn Piggott, Norvin Richards and Lisa Selkirk.

I would also like to give special thanks to Kristín Bjarnadóttir, who has not

only showed a great deal of enthusiasm for compounding but also maintained a steady stream of potential counterexamples that have taken my research to new and interesting places. Thanks also to Jim Wood for his valuable feedback and discussions as well as Kristín Lena Þorvaldsdóttir, Hlíf Árnadóttir, Elísa Guðrún Brynjólfssdóttir, Einar Freyr Sigurðsson and Anton Karl Ingason for their incredibly helpful discussion of various data.

From among my fellow students, I would like to thank Julio Villa-García, who was the first person I met in Storrs, and along with Mary Goodrich, introduced me to the community and made sure that I did not forget about food and drink and life outside campus. Thanks to Aida Talić, who, in my time here, has become one of my most closest neighbors (both in terms of research and deskpace) and participated in countless, impromptu brainstorming sessions. Thanks to the other members of my cohort, Peter Smith, Safet Beriša and Soyoung Eom for good company and and fantastic discussions throughout our stay here. Thanks to my various officemates in various offices (windowed and otherwise), Beata Moskal, Neda Todorović, Jungmin Kang, Miloje Despić, Ita-Chris Hsieh, Troy Messick, Adrian Stegovec, Ksenia Bogolomets. Also a special thanks to Zheng Shen, Renato Lacerda and Christos Christopoulos for all the dogsitting. From each of you I have learned something that has proven to be most valuable, insight into binding, ellipsis, vowel harmony, counterfactuals, where to get a sharp haircut and a decent cup of coffee, etc. I also have to tip my hat to Paula Fenger, who has been a good friend with a special knack for following up on plans made under the influence and for showing me that profanity can be quite profound (or at least quite interesting). From outside of the office I would like to thank Helen Kulidobrova for all the good company, discussions, dinners and coffees, and Laura Kalin and Sabine Laszakovits for showing me how to use L^AT_EX. Special thanks to Laura Kalin and Emma Nguyen for all the pastries.

Finally, I would like to thank my family for their patience and for just existing. They were a constant source of joy and a perfect distraction when I thought things were getting to be too much, whether it was walking Garpur, or joining Astrid in something Astridian, or waiting for Ottó. But most of all I would like to thank my husband Jonas Moody who put his aspirations on hold so that I could finish this work. It was a lot to ask, but I never even had to. Takk!

For my parents and children.

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Chapter 1

Introduction

I don't believe in barriers, because I always break them.

— Dr. Buzz Aldrin, 30 Rock

1.1 The big picture

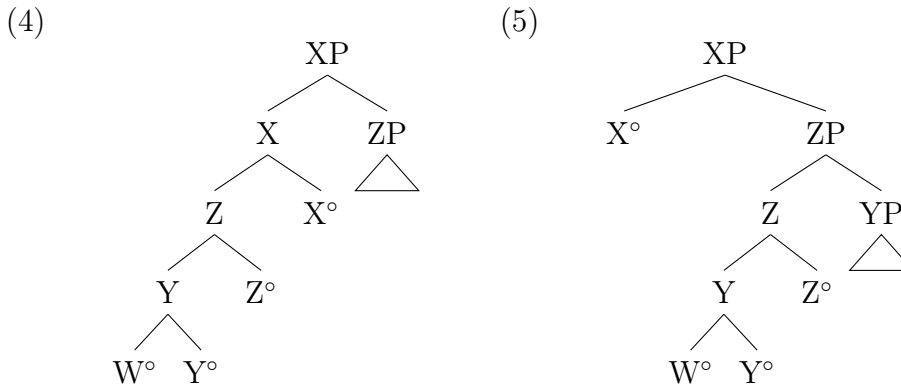
The overarching theme of this dissertation is the question of domains across grammar, namely:

- (1) How are they defined?
- (2) Are they the same across different components of grammar?
- (3) What do these domains constrain?

These questions are old and have followed us in one way or another through time and the various frameworks (since at least Chomsky 1965 for syntax). As for (1), the debate has revolved around whether these domains are to be defined rigidly, i.e. that domains are always defined by particular elements (e.g. Chomsky 2001, 2005, Marantz 2007), or whether these domains are defined contextually (e.g. Chomsky 1986, Bobaljik & Wurmbrand 2005, 2013, Bošković 2005, 2014, Wurmbrand 2017).

With the rise of work focussing on the interfaces in the recent years, (2) has become increasingly important, with the predictable range of stances from “no” (e.g. D’Alessandro & Scheer 2015) to “yes” (e.g. Embick 2010). On a deeper level, there is also the question of whether the relation between two heads is the same whether the two heads are in a phrasal configuration, XP, or within the same complex head, X° . Here, again we run into the same range of positions ranging from “yes” Merchant (2015) and “no” Bobaljik (2012).

In this dissertation I argue for the position that domains are defined contextually across all components, however, mismatches between XP level and X° are possible. Consider the two structures below where X° is the topmost head in the extended projection of W° (see also Bobaljik 2012).



In (4), W° has undergone successive cyclic head movement to X° , hence X° is the topmost node at both the phrasal and the head level. In (5), however, W° has not moved all the way to X° , and hence we see a mismatch between head and phrasal level. At the phrasal level, X° is still the topmost head in the extended projection of W° , and still serves as a domain boundary at the phrasal level. X° is however, not relevant for interactions within the complex head Z. There the highest node is Z° , and hence serves as a domain boundary for the complex head.

This brings us to (3). There is a recurring theme across the components of grammar, where certain processes obey particular boundaries whereas other pro-

cesses ignore those particular boundaries while still being domain-bound. In syntax we see such behaviour with e.g. \bar{A} -movement and Quantifier Raising (Wurmbrand 2013), or head and phrasal movement. At LF we observe this difference between short-distance binding and variable binding. In each of these pairs, the former member has a relatively narrow locality restriction whereas the latter member has a larger domain of application while still being domain-bound. I argue here that contextual allomorphy and morphophonology instantiate such a pair at PF, i.e. that contextual allomorphy is subject to a strict locality restrictions, whereas morphophonology can apply across such boundaries (contra e.g. Embick 2010:47). As we see from compounding in Chapter 3, morphophonology is nonetheless domain bound. Hence some domain bound phenomena can ignore certain domain boundaries.

1.2 Overview

This dissertation addresses(1)–(3) through a detailed study of the nominal sphere in Icelandic. The analysis is couched within the framework of Distributed Morphology Halle & Marantz (1993, 1994), Harley & Noyer (2003), Embick & Noyer (2007), i.e. that both word- and sentence building are subject to the same principles and that phonological material is inserted post-syntactically.

In chapter 2, I explore the relationship between inflection on non-head elements bracketing restrictions within compounds. I show that, in a right branching structure, inflected non-head elements must be peripheral to uninflected non-head elements. I link this to the structure of the noun itself and propose a condition on compounding that requires elements to match their attachment site in syntactic type, i.e. stems must merge at the stem level and inflected elements must merge at the inflectional level.

In chapter 3, I provide an account for the apparent mismatch between the struc-

ture of argued for in chapter 2 and the structure indicated by morphophonological interactions. Namely, that in case of stem compounding, the two stems are argued to form a constituent to the exclusion of the inflectional material, whereas the head stem and the inflectional material interact morphophonologically, which the two stems do not. To account for this paradox, I propose that the domain for morphophonological interactions is defined by the extended projection of the root. That means that in a complex head, such as a compound, there may be parts of the structure that are excluded from the domain of morphophonological interactions. In the case of compounding the complex head will contain multiple roots, hence multiple domains. The domain of the head of the compound will span the entire complex head, however, this domain contains smaller inaccessible domains, which the head of the compound cannot interact with. I then extend this to other bracketing paradoxes such as the Germanic particle-verb construction, where the particle, i.e. a non-root, is excluded from the extended projection of the root.

In chapter 4, I explore the traditional noun phrase in Icelandic, its structure and the syntactic processes within. I argue that what is traditionally referred to as NP is, in fact, the mirror image of the structure of the noun that was argued for in the previous two chapters. I show, based of evidence from binding and ellipsis, that the advantages of a phrasal movement account are offset by the need for ad hoc movement of the postnominal elements. I propose a return to a head movement approach where the fronting of the noun, adjective and pronominal possessor is separated into three independently motivated operations. First, the noun undergoes head movement to D in order to value an unvalued feature on D. Second, I argue that the movement of the pronominal possessors is analogous to pronominal object shift, found across the North Germanic languages. Third, I argue that the fronting of the adjective is the result of focus movement to the specifier of D. I support this argument with evidence from both semantics, where the meaning of the adjective

is contingent on its position relative to the article, and prosody, where the fronted adjective usually receives greater prosodic prominence than the noun, which is in direct contrast to prenominal adjectives in indefinite noun phrases, where the noun receives greater prominence. Finally, in chapter 5, I present some preliminary explorations into the question of domainhood within the TNP. Although the data is inconclusive due to factors whose proper account lie outside the scope of this dissertation, the findings do point to there being two separate domains within the TNP that appear to line up with the domains observed within the noun itself.

Chapter 2

Compounding in Icelandic

In Germanic, compounds have generally been assumed to be recursive structures, where e.g. N is added to another N, yielding a large and complex structure such as the following:¹

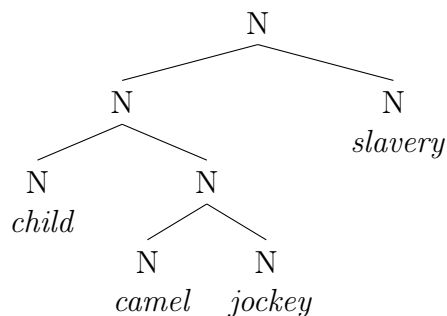
- (1) a. Donau#dampf#schiff#fahrt-s#gesell-schaft-s#kapitän-s#mütze
Danube#steam#ship#journey-L#journeyman-SUFF-L#captain-L#cap
‘cap of the captain of the Danube steam ship company’
[German, Neef 2009]
- b. child camel jockey slavery [English, Jackendoff 2009]
- c. vaðla#heiða#vega#vinnu#verk#færa#geymslu#skúrs#lykla#kyppa
mud#moor#road#work#work#instrument#storage#shed#key#chain
‘A keychain holding the key to the roadwork tool shed on Vaðlaheiði’
[Icelandic]
- d. kinder#tanden#borstel#houder#ophang#mechanisme
child#tooth#brush#holder#ophang#mechanism
‘a mechanism for hanging up children’s toothbrush holders’
[Dutch, Paula Fenger, p.c.]

In these terms, a compound such as (1b) above, would be formed by a recursive

¹A large portion of the research presented in this chapter and chapter 3 has been published in Harðarson (2016)

rule along the lines of (2a) below (cf. Selkirk 1981, Zwanenburg 1990), yielding a structure along the lines of (2b).

- (2) a. $N \rightarrow N\ N$
 b.

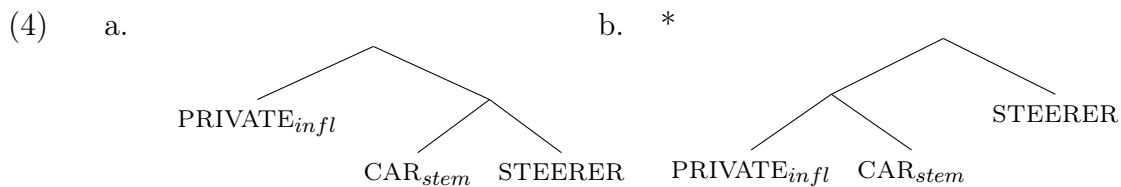


Furthermore the lack of inflectional morphology on non-head elements has also traditionally been seen as diagnostic criterion for compoundhood, going at least as far back as (Bloomfield 1933:229ff). Cross linguistically however, various languages do allow inflection on non-head elements of compounds (henceforth inflected modifiers, or MOD_{infl}), such as Finnish, Estonian, Yimas and Tamashek (Bauer 2009: and references cited therein) and among them Icelandic (e.g. Kvaran 2005:154). Despite this, the lack of inflection is still often taken as a diagnostic for compoundhood and inflectional marking is argued to be only apparent (see e.g. Wiltschko 2008 on number marking on non-head elements in compound in Halkomelem Salish).

Previous work on compounding in Icelandic can be placed in three categories with regard to their treatment of inflected and uninflected modifiers: The first type of approach treats the two as phonologically conditioned variants, where the linking morpheme or inflectional material is inserted to split up undesirable consonant clusters (cf. Jónsson 1987), hence grouping together inflectional material and linking morphemes. The second category of approaches does not make a distinction between the two types of modifiers (e.g. Jóhannesson 1929, Bjarnadóttir 1990, 1996). The third category, assuming a Lexicalist framework, argues that the two types of modi-

fiers are merged at different components of grammar, i.e. that uninflected modifiers (with or without the linker) are attached in the lexicon and inflected modifiers are attached in the syntax (Indriðason 1999), hence grouping together uninflected modifiers and those with linking morphemes against inflected modifiers. However, an observation made by (Rögnvaldsson 1990:35) went relatively unnoticed, namely that in case of a compound containing MOD_{infl} and an uninflected modifier (MOD_{stem}), where the order of elements is MOD_{infl} — MOD_{stem} —HEAD, the structure tends to be right branching.² Following up on this, I argue, based on data reported in various corpus studies, that a stronger claim can be maintained, i.e. in such compounds, left branching is simply not possible, and provide an account thereof. This is exemplified here by *einkabílstjóri* in (3), which was discussed by Rögnvaldsson (1990:35), where a right branching structure yields the interpretation meaning ‘chauffeur’, (4a), whereas a left branching structure would yield the interpretation ‘a driver of a privately owned car’, (4b).

- (3) eink-a#bíl#stjóri
private-GEN#car#steerer
 ‘chauffeur’



However, if both modifiers are inflected, as in *einkabílastæði*, (5), the compound is potentially ambiguous between a right and left branching structure yielding ‘private parking spot’, (6a), and a left branching interpretation yielding the interpretation ‘parking spot for privately owned cars’, (6b).

²Although this was not explicitly stated, a similar conclusion can be extrapolated from Jónsson (1984).

- (5) eink-a#bíl-a#stæði
private-GEN #car-GEN #space

- (6) a.
 PRIVATE_{infl} CAR_{infl} SPOT
 ‘private parking spot’
- b.
 PRIVATE_{infl} CAR_{infl} SPOT
 ‘parking spot for private cars’

Furthermore, this study reveals that the inverse is true of compounds in which MOD_{stem} linearly precedes MOD_{infl}; i.e. only the interpretation consistent with a left branching structure is available.

- (7) haf#rannsókn-ar#skip
sea#research-GEN #ship
 ‘marine scientific research vessel’

- (8) a. *
 SEA_{stem} RESEARCH_{infl} SHIP
- b.
 SEA_{stem} RESEARCH_{infl} SHIP

As in (5) above, when both modifiers are stems, the compound is ambiguous, as in *járnstólfótur* which could denote either ‘iron leg from a chair’ where the rest of the chair itself may be wood, (10a), or ‘leg of an iron chair’, (10b).

- (9) járn#stól#fótur
 iron#chair#foot

- (10) a.
 'iron leg from a chair'
- b.
 'leg of an iron chair'

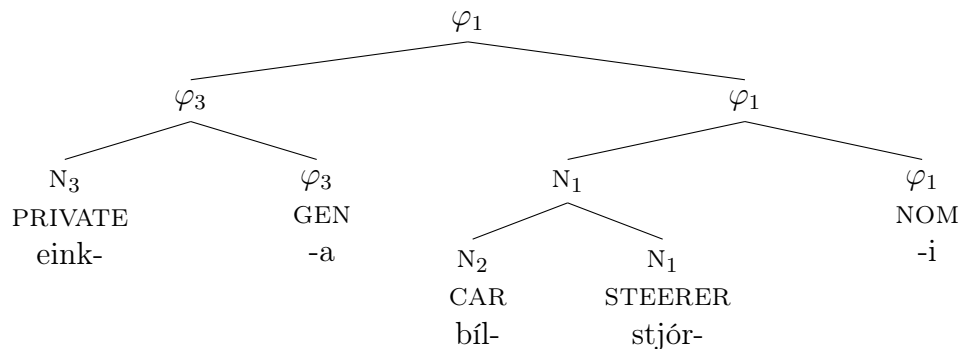
The goal of this chapter is to first establish the generalization described above and provide an account for the generalization within the framework of Distributed Morphology (Halle & Marantz 1993, 1994, Harley & Noyer 2003, Embick & Noyer 2007). Central to my account is that even simple nouns have a complex, sometimes unexpressed, structure. The structure assumed for simple nouns is provided in (11) below.

- (11) a. mann-i
 man-DAT.SG
- b.

A nominal stem such as *mann-* ‘man’ is assumed to consist of an acategorial root, a category node (following Marantz 1997: i.a.), and inflection is realized on a separate node, φ . To account for the pattern observed, I propose a *Matching Condition*, which states that elements being merged by compounding must be of the same type/size, i.e. only roots can attach to roots, only stems can attach to stems and only inflected material can attach to φ . Under this approach, the structure in (4a)

would be as in (12). Note that the root and category nodes have been collapsed into N for ease of exposition.

(12)



Under the matching condition, the right branching structure is the only licit one. The left branching structure would require φ_3 to attach to N_2 , which is disallowed.

This chapter is organized as follows: in §1, I address the question of whether MOD_{infl} are truly word-internal or if they are word-external modifiers. I present evidence from syntax and phonology and argue that these are truly compounds and not phrasal constructions. In §2, I provide an overview of the relevant characteristics of Icelandic grammar and compounding. In §3, I discuss constituency within Icelandic compounds based on data reported in the literature, examples collected by myself as well as nonce compounds. In §4, I follow up the previous section with an analysis of the pattern in terms word structure and the *Matching Condition*. In §5, the main points of the chapter and loose ends will be summarized some directions for further research will be discussed.

2.1 Words or phrases—Compounds and noun phrases

square off

Given the prevalence of the idea that non-head elements in compounds do not contain inflection, it is worth addressing the question at this point whether the constructions being discussed are in fact compounds and not noun phrases. There are several tests available that allow us to distinguish between the two, both syntactic (DP structure and ellipsis) and phonological (word-stress).

In Icelandic, primary stress falls on the first syllable of the word and secondary stress falls rhythmically on every other on every other subsequent syllable resulting in a trochaic stress pattern (strong—weak) (Árnason 1985a, 1987, 2011:271–275). This is illustrated with the following examples using the trisyllabic stem *prófessor* and the bisyllabic stem *drottning-*, with and without the definite article.

- | | | | | |
|------|----|--|----|---|
| (13) | a. | 'prófess,or
' <i>professor</i> ' | c. | 'prófess,or-u-,num
<i>professor</i> -DAT.PL-THE.DAT.PL |
| | b. | 'drottning-,ar
<i>queen</i> -GEN.SG | d. | 'drottning-,ar-inn-,ar
<i>queen</i> -GEN.SG-THE-GEN.SG |

In (13a) and (13b) secondary stress falls on the final syllable of *prófessor* and the inflectional suffix of *drottning*, respectively. The pattern is maintained in case of additional material in (13c) and (13d) where the definite article and its inflectional ending has been cliticized onto the noun.

In Icelandic, like various other languages, the compound stress pattern differs from the stress pattern observed in simple (single-stem) words (see e.g. Chomsky & Halle 1968 on English and e.g. Gouskova & Roon 2009 on Russian). In compounds, the leftmost stem receives primary stress and the first syllable of every subsequent stem receives secondary stress. This applies for both stem compounds and genitive

compounds.³

- | | | | | |
|------|----|--|----|---|
| (14) | a. | 'prófessor#líki
<i>professor#likeness</i>
'pseudo-professor' | b. | 'drottning-ar#maður
<i>queen-GEN.SG#man</i>
'the queen's husband' |
|------|----|--|----|---|

Unlike (13) above, the regular trochaic stress pattern breaks down in (14), resulting in a dactylic stress pattern (strong - weak - weak) on *prófessor* and *drottningar*.

The regular trochaic stress pattern can be observed in certain cases, however only incidentally. This occurs either in cases where the modifier is bisyllabic as in (15) or as a result of stress clash resolution as in (16).

- | | | | | | |
|------|----|---|------|----|---|
| (15) | a. | 'fugla#hræða
<i>bird#scarer</i>
'scarecrow' | (16) | a. | 'fisk#verkandi
<i>fish#worker</i>
'fish processor' |
| | b. | 'epla#edik
<i>apple#vinegar</i>
'cider vinegar' | | b. | 'plat#fisk#verkandi
<i>fake#fish#worker</i>
'fake fish processor' |

In the case of a monosyllabic modifier as in (16), assigning stress to the first syllable in every stem will result in a clash. In those cases, the secondary stress is either shifted to the following syllable, as in (16a) or, if that is not possible, deleted as in (16b).

In case of possessors⁴, each of the two elements receives primary stress as in the following example, which contrasts with (14b).

- (17) 'maður 'drottningar
man.NOM.SG queen.GEN.SG
 'man of the queen/a queen's husband'

³(14a) is an attested example found in *Ritmálssafn Orðabókar Háskólans*. (n.d.) The Árni Magnússon Institute for Icelandic Studies. Accessed 10.15.2014 from www.arnastofnun.is/page/ritmal. The stress information is based on my own judgement.

⁴It should be noted that these genitives can in fact bear various different thematic roles, I will however be referring to these genitives as *possessors* in this section to avoid confusion between them and genitive non-head elements in compounds.

Since MOD_{infl} pattern so clearly with MOD_{stem} in contrast to possessive constructions in terms of stress assignment, it can be said that MOD_{infl} pass this test of being word-internal.

From the syntactic side, two types of evidence are presented here. First, I discuss evidence from the structure of the DP and then follow that up with evidence from ellipsis.

Possessive constructions are always postnominal in Icelandic, (18a), unless they are contrastive and then usually bear contrastive stress, (18b). Note also as in (17) each element bears primary stress.

- (18) a. 'bill 'kennarans
 car.NOM.SG teacher.GEN.PL.THE.GEN.SG
 'the teachers' car'
- b. 'kennarans 'bill
 teacher.GEN.PL.THE.GEN.SG car.NOM.SG
 'the teachers' car (not the students)'

The definite article on the possessor in (18b) appears to be obligatory in such constructions (Þráinsson 2007:90–91), as is illustrated below where an indefinite prenominal possessor is ungrammatical.

- (19) a. 'bíll 'kennara
car.NOM.SG teacher.GEN.SG
 'a teacher's car'
- b. *'kennara 'bíll
teacher.GEN.SG bill.NOM.SG
 'a teacher's car'

If the compound stress pattern were to be applied to (18b), the result would be ungrammatical, as is shown in (20a). Applying the compounding stress pattern to the elements in (19b) will yield a grammatical result as shown in (20b).

- (20) a. *'kennarans#_i bíll
 teacher.GEN.PL.THE.GEN.SG # *car*.NOM.SG
 ‘the teachers’ car’
- b. 'kennara#_i bíll
 teacher.GEN.SG # *bill*.NOM.SG
 ‘a teacher’s car’

These facts are entirely consistent with the intuition that modifiers are structurally deficient (cf. Bloomfield 1933:230, Harley 2009 i.a.). The modifier does not contain the necessary structure to host the definite article. However, these examples stand in contrast to the common assumption that inflection is what closes off the word (e.g. Gouskova 2010). The modifiers must contain enough structure to host inflectional morphology, but they do not contain enough structure to be referential or host the definite article.⁵

Furthermore, prenominal genitives and MOD_{infl} differ in their position relative to attributive adjectives. Icelandic attributive adjectives are prenominal in Icelandic and always stand between prenominal genitives and the noun, as is illustrated below. Note that in the presence of the prenominal genitive the adjective receives the so-called weak declension, as in (21b).⁶ Strong/weak declension of the adjective has no effects on the grammaticality of (21a) whereas the weak declension is obligatory in (21b).

⁵It is also worth noting at this point that these facts also counter the various theories that make case contingent on a head K dominating the DP (e.g. Kester 1996, Vangsnes 1999). Since MOD_{infl} has case but is incompatible with the definite article, it certainly points to the head necessary for realization of case being lower than D. In fact, as will become clear later on, I will assume that this head is word internal. Although this will have interesting consequences for the general architecture of the DP which will be addressed in chapter 4.

⁶The weak declension of adjectives is generally associated with definiteness although that is not always the case. This is not directly relevant to the discussion of this chapter so it will not be discussed further here, but see chapter 4.

- (21) a. *rauð/a kennarans bók
red.STR/WK teacher.GEN.SG.THE.GEN.SG book.NOM.SG
 ‘the teacher’s red book’
- b. kennarans rauða/*rauð bók
teacher.GEN.SG.THE.GEN.SG redWK/redSTR book.NOM.SG
 ‘the teacher’s red book’

In case of MOD_{infl} , the adjective can never intervene, as is illustrated in (22). In (22a) the adjective receives a strong declension. As with (21a) above, (22b) is ungrammatical whether the adjective receives a strong or weak declension.

- (22) a. rauð/*rauða kennara#bók
red.STR/red.wk teacher.gen.sg#book.nom.sg
 ‘a red teacher’s book’
- b. *kennara rauð/rauða bók
teacher.GEN.SG red.STR/red.WK book.NOM.SG
 ‘a red teacher’s book’

Hence it is clear that the structural position of prenominal possessors and MOD_{infl} is different, as well as their internal structure. However, that fact alone is not enough to declare MOD_{infl} to be word-internal. One more piece of evidence is needed, and for that final piece of evidence I turn to ellipsis.

Ellipsis, as is standardly assumed, targets particular constituents within a given structure, but usually not within a complex head (see e.g. Lobeck 1995, Merchant 2001 and their subsequent works). It should be noted, however, that Coordination Reduction is known to apply within complex heads, (see e.g. Wurmbrand 1998), which is also true in Icelandic:

- (23) háls-, nef- og eyrna#læknir
throat.STEM nose.STEM and ear.GEN#doctor
 ‘ear, nose and throat doctor’

In such cases there does not appear to be any distinction between stem and genitive

modifiers in this respect as is shown in (23).

When ellipsis targets constituents larger than a complex head as in N'-ellipsis, it is possible for phrasal genitives to survive ellipsis, as in (24a) below, as well as being elided, (24b), although if the genitive is elided, it must match the antecedent.⁷

- (24) Hvort ætti ég að nota rauðu töskuna hans Péturs eða...
which should I to use red bag.THE his Pétur.GEN or
 'Which should I use: Peter's red bag or...'
- a. ...þessa gulu _ hans Jónasar?
that yellow his Jónas.GEN
 '...Jonas' yellow one?'
- b. ...þessa gulu _?
that yellow
 '...that yellow one?'

MOD_{infl} on the other hand never survive ellipsis, as is illustrated below.

- (25) Hvort viltu rauðu læknis#töskuna eða...
which want.you red doctor.GEN#bag.THE or
 'Which do you want: the red ...'
- a. *...þessa gulu skóla _?
that yellow school.GEN
 '...that yellow school one?'
- b. ...þessa gulu _?
that yellow
 '...his yellow one?'

There are two possible ways of explaining (25): (i) MOD_{infl} is a complement of the head noun (setting aside the placement of the possessors) and the constituent targeted includes the head noun and its complement; or (ii) MOD_{infl} form a complex head. Assuming (i) is problematic since Icelandic is a head-initial language and it

⁷The precise mechanisms behind ellipsis or whether the process under discussion strictly constitutes ellipsis are not directly relevant to the discussion here but ellipsis be discussed further in chapter 4. Even if the process is more akin to 'one'-replacement, the predictions are the same, it is expected to apply to phrasal constituents and not within complex heads (see e.g. Harley 2005).

would be a rather ad hoc assumption to assume that Icelandic is only head-final in terms of head nouns and MOD_{infl} and otherwise consistently head-initial (see e.g. Práinsson 2007:17ff and chapter 4 of this dissertation). Furthermore, assuming binary branching, two MOD_{infl} s would always form a constituent to the exclusion of the head. Hence in order to achieve a right branching interpretation of such a structure would require drastic reorganization at the semantic interface. (ii) allows us to maintain the standard assumptions of headedness in Icelandic syntax and allows us to represent the meaning of right branching compounds containing two MOD_{infl} s in the structure. To sum up, in all of the cases discussed here, the combination of MOD_{infl} and the head noun patterns with words rather than phrases pointing strongly to them forming a head.

2.2 Nominal compounds—Some central traits

In this section I discuss the main attributes of compounding in Icelandic and some relevant aspects of Icelandic grammar. This section starts with a general discussion of the different methods of compounding, i.e. stem-, linker- and inflected (genitive) compounds, and their relative frequencies. That discussion is then followed by contrasting MOD_{infl} and linking morphemes, showing that these are indeed different phenomena. Note that the focus of this study is on compounding in the nominal domain. Some preliminary notes on compounding outside the nominal domain can be found in §5.

Like English, Icelandic allows stem compounding, i.e. compounds where the modifying element is a stem (i.e. noun without inflection), as in the following example adapted from (Indriðason 1999:112).

- (26) *kísil#málm#verk#smiðja*
silicone#metal#work#smith
 silicone metal factory

In addition to stem compounding, Icelandic also allows inflection within the compounds (see e.g. Jónsson 1984, Rögnvaldsson 1990, Indriðason 1999, Kvaran 2005). Examples of this are given in (8) below, where MOD_{infl} surface as genitives.

- (27) a. dýr-a#lækni-r
animal-GEN.PL#doctor-NOM.SG
 ‘veterinarian’
- b. kjarn-a#fæði
core-GEN.SG
 ‘good food’

In many cases the compounds can have a (roughly) synonymous phrasal counterparts, e.g. (27a), but others don’t, e.g. (27b).

- (28) a. lækni-r dýra
doctor.NOM.SG animal.GEN.PL
 ‘a doctor of animals’ ≈(27a)
- b. fæði kjarna
food.NOM.SG core.GEN.SG
 ‘food for core’ ≠(27b)

Genitive case is by far the most common case on non head elements, however other inflectional patterns are possible (Bjarnadóttir 1990, 1996). Other types of MOD_{infl}s include dative, agreeing adjectives and PPs (Bjarnadóttir 1990, 2000). An example of each is provided in (29) and their phrasal counterparts are provided in (30).

- (29) a. gull-i#blandað-ur
gold-DAT.SG#mixed-NOM.SG
 ‘mixed with gold’
- b. gaml-i#sáttmáli
old.WK#covenant.NOM.SG
 ‘Old Covenant’
- c. milli#stríð-s#ár
between#war-GEN.SG#year.NOM.PL
 ‘the years between WWI and WWII’

- (30) a. blandaður gulli
mixed.NOM.SG gold.DAT.SG
 ‘mixed with gold’ \approx (29a)
- b. gamall sáttmáli
old.STR covenant.NOM.SG
 ‘an old covenant’ $\not\approx$ (29b)
- c. ár milli stríða
year.NOM.PL between war.GEN.PL
 ‘years between wars’ $\not\approx$ (29c)

These types of compounds are rare and of questionable productivity and will hence be set aside for the purposes of this study.⁸

The modifier can be either singular or plural and appears in some cases to correspond to the intended meaning, (31a) and (31b), although examples such as (31c) and the synonymous (31d) point to number marking to be less transparent Indriðason (1999).⁹

- | | |
|---|---|
| (31) a. ald- <i>ar</i> #lok
<i>century-GEN.SG #end</i>
‘end of a century’ | c. mánað- <i>ar</i> #mót
<i>month-GEN.SG #meet(N)</i>
‘turn of the month’ |
| b. ald- <i>a</i> #mót
<i>century-GEN.PL #meet(N)</i>
‘turn of a century’ | d. mánað- <i>a</i> #mót
<i>month-GEN.PL #meet(N)</i>
‘turn of the month’ |

As can be seen by the meaning of (31a), the compound is referring to the end of a single century, whereas (31b) refers to the end of one and the beginning of another (or a ‘meeting of two centuries’). However, in (31c), the compound refers to a meeting of two months in the same way as in (31b) and yet the modifier is marked singular. Furthermore, there is an entirely synonymous compound in which the MOD_{infl} is marked with plural. Hence the number morphology does not seem to be making

⁸Bjarnadóttir (1990)’s corpus study counted 23,251 genitive compounds and only 121 dative compounds.

⁹Both (31c) and (31d) seem to be at equal footing as far as usage is concerned. A google search done on Oct. 8th 2014 yielded similar numbers of search results, i.e. 73.600 for PL and 84.800 for SG.

a semantic contribution. Given the relative insignificance of number marking on MOD_{infl} , it will be omitted from the glosses for the remainder of this chapter, unless directly relevant.

It should be noted that Icelandic also has four linking morphemes, *-a*, *-i*, *-u*, and *-s*. In terms of the distribution discussed here stems with linking morphemes pattern with MOD_{stem} and not MOD_{infl}. Further discussion on the distinction between linking morphemes and inflection can be found in the appendix to this chapter.

It is often possible to form two synonymous compounds using different types of modifiers as in the following:

- (32) a. fisk#bollur
 fish#balls
 ‘fishballs’
 b. fisk-a#bollur
 fish-GEN#balls

In other cases, however, such pairs are not synonymous.

- (33) a. vél#hjól
machine#wheel
 ‘motorcycle’
- b. vél-ar#hjól
machine-GEN#wheel
 ‘machine wheel’
- [adapted from Indriðason 1999:113]

MOD_{infl} is highly productive and very common. Depending on the span of the corpus, MOD_{infl} counted between 40%, in a study reported by Bjarnadóttir (1994:128) and 82% of non-branching and 95.5% of branching modifiers in a study reported by Jónsson (1984:174).¹⁰ Stem compounds are also quite common, where they count 58% of Bjarnadóttir's sample. Stem compounds are rarely right branching, as evidenced by Jónsson's sample, where only 3% of branching modifiers were stems. Linker compounds are the least productive, counting only 2% of Bjarnadóttir's

¹⁰The corpus used by Bjarnadóttir spanned written material from 16th to 20th centuries and Jónsson's collected compounds containing three or more elements from a single edition of a daily newspaper.

sample. Branching linker modifier are even less common, counting only 0.2% of Jónsson's sample.

To sum up, modifiers in Icelandic compounds are of two types, stems and inflected modifiers. The inflectional suffixes on MOD_{infl} is entirely predictable from the stem it attaches to and their inflectional class. Icelandic also has linking morphemes, which are for the most part predictable from the stem they attach to but do not line up with the genitive suffix predicted by the stem.

2.2.1 Choosing the different types of modifiers

In previous discussions the difference between the various modifiers has mostly revolved around questions of the “function” of inflection and linking morphemes in compounding or the potential reason for their presence (cf. Jónsson 1987, Rögnvaldsson 1990). One supposed function is to eliminate difficult consonant clusters, as in the following example, discussed by Rögnvaldsson (1990), where the genitive suffix *-ar* eliminates the consonant cluster *-rðv-*. The judgements below are as given in the work cited.

- (34) a. jarð-ar#verð
earth-GEN#price
 ‘price of land’
- b. *jarð#verð
earth#price

There are however many counterexamples to this generalization, such as the following, where in each case the stem compounding results in the cluster $-r\delta v-$, yet stem compounding is licit.

- (35) a. jarð#vinna b. jarð#vegur c. jarð#varma#virkjun
earth#work *earth#road* *earth#warmth#working*
 ‘ground work’ ‘dirt/ground’ ‘geothermal power plant’

If the function of inflectional material and the linkers is to eliminate complex consonant clusters, *jarǝ-* would be expected to take either a linker or a genitive suffix.

Hence, the choice of genitive suffix or linker does not seem to be driven by an avoidance of complex consonant clusters.

Another function contemplated by (Rögnvaldsson 1990:35) is that the genitive shows “how the compound is put together”, namely that in a left-branching compound, the second modifier will receive a genitive suffix (similar proposal is made in Jónsson 1987:96). He provides the following examples:

- (36) a. *borð#plata* vs. *[[skrif#borð-s]#plata]*
table#board *writing#table-GEN#board*
‘tabletop’ ‘desktop’
- b. *bók#lestur* vs. *[[nám-s#bók-a]#lestur]*
book#reading *study-GEN#book-GEN#reading*
‘reading of books’ ‘reading of school books’

If it were really the case that the inflectional suffix indicates a left branching structure, the prediction would be that there would be no left-branching compounds involving two MOD_{stem} . That is not the case, however, as we will see in the following section. Furthermore it is unclear what that would predict in case of a compound with two MOD_{infl} . If the inflectional suffix marks a kind of break in the structure, one would not necessarily expect a left-branching structure as in (36b). It would be just as plausible that the break be between the first MOD_{infl} and the rest of the compound, yielding a right branching structure. Both are attested. Hence, in case of (36b), Rögnvaldsson appears mainly to be capturing a bias towards left branching structures, as Warren (1978) mentioned for English and Jónsson (1984) for Icelandic. In case of (36a), however, Rögnvaldsson did capture something deeper, namely that in compounds where MOD_{stem} linearly precedes MOD_{infl} , a right branching structure appears to be impossible. The causality then appears to be the reverse: the suffix does not appear because the structure is left-branching; its presence seems to preclude a right-branching structure when MOD_{infl} is preceded by MOD_{stem} .

Jónsson (1987) mentions that there is a tendency for bisyllabic stems and

stems containing certain derivational affixes, such as *-un-* or *-ing-*, to be used as MOD_{infl} rather than MOD_{stem} . This is not surprising, given the overall preference for MOD_{infl} over MOD_{stem} . As was seen above, however, there are cases where apparent derived stems appear as MOD_{stem} , as is the case with *fisk-* in *fisk-i#bollur*. This may then simply be a tendency for these stems to appear as MOD_{infl} analogous to certain simplex stems (Indriðason 1999, Jónsson 1987, 1984).

To sum up the discussion, there seem to be no particular factors governing the choice between MOD_{stem} and MOD_{infl} . There is a general preference for MOD_{infl} over MOD_{stem} , and in addition to that preference, there are certain stems that are preferred as MOD_{infl} rather than MOD_{stem} .

2.3 Constituency in Icelandic compounds

As briefly mentioned above, the standard assumption in the literature on Icelandic compounds has been that the modifiers are in the same structural relation to the head, e.g. $[_n \text{ mod } [_n \text{ head}]]$. Hence the differences between MOD_{infl} and MOD_{stem} have mainly been treated as a surface distinction (see references cited above). In this section, extending an observation of (Rögvaldsson 1990:35), I argue there are restrictions on the interpretations of combinations of MOD_{infl} and MOD_{stem} . These restrictions are not predicted under the assumption that a compound is simply a combination of nouns or noun stems, N+N, irrespective of the elements involved. If the differences between MOD_{infl} and MOD_{stem} were merely surface distinctions, any compound consisting of three elements should be ambiguous. This is not the case in Icelandic; different structural possibilities come about with different order and combination of modifiers. In this section, I discuss these restrictions and sketch out a preliminary analysis which will be refined in §4.

2.3.1 Constituency

In general, any linear order of MOD_{infl} and MOD_{stem} and combinations thereof is possible, as is illustrated below.¹¹

- (37)
- a. $\text{MOD}_{stem} \text{---} \text{MOD}_{stem} \text{---} \text{HEAD}$
 - b. $\text{MOD}_{infl} \text{---} \text{MOD}_{infl} \text{---} \text{HEAD}$
 - c. $\text{MOD}_{infl} \text{---} \text{MOD}_{stem} \text{---} \text{HEAD}$
 - d. $\text{MOD}_{stem} \text{---} \text{MOD}_{infl} \text{---} \text{HEAD}$

When the constituency within such compounds is examined the aforementioned pattern emerges. For compounds of (37a) type, where both modifiers are stems, right- and left-branching compounds are attested. The bracketing is given as reported in the source where available, otherwise, the bracketing given is according to the established meaning or the meaning indicated by attested contexts. For the examples in (38) and (39) an alternative bracketing is possible in principle, but I have chosen to restrict the presentation to the attested contexts or the bracketing indicated in the works cited.

¹¹Note that I limit the discussion to 3-element nominal compounds since the addition of further elements complicates the picture and hence the exposition exponentially. A preliminary study of larger attested compounds appears to show the same general pattern.

(38) MOD_{stem} — MOD_{stem} — HEAD

- a. [hár# [snyrt-i# tæki]]
hair_{stem} groom-L gadget
 ‘hair grooming gadget’ [Jónsson 1984:166]
- b. [hand# [knatt# leikur]]
hand_{stem} ball_{stem} game
 ‘hand ball’ [ÁM]¹²
- c. [þjóð# [hag# fræði]]
nation_{stem} interest_{stem} study
 ‘macroeconomics’ [ÁM]
- d. [[salt# fisk#] markaður]
salt_{stem} fish_{stem} market
 ‘salt fish market’ [Jónsson 1984:172]
- e. [[skel# fisk#] tegund]
shell_{stem} fish_{stem} species
 ‘shell fish species’ [Jónsson 1984:172]

This is also the case with compounds of (37b) type, where both modifiers are inflected. Both right- and left-branching compounds are attested.

¹²Árni Magnússon Institute for Icelandic Studies Written Language Archive (Ritmálssafn Orðabókar Háskólans. (n.d.) The Árni Magnússon Institute for Icelandic Studies. Accessed 11.19.2012 from www.arnastofnun.is/page/ritmal).

- (39) MOD_{infl} — MOD_{infl} — HEAD
- a. [atvinnu# [hnefa# leikari]]
work_{infl} fist_{infl} player
 ‘professional boxer’ [ÁM]
 - b. [einka# [bíla# stæði]]
private_{infl} car_{infl} spot
 ‘private parking spot’ [Rögnvaldsson 1990:29]
 - c. [[einka# bíla#] stæði]
private_{infl} car_{infl} spot
 ‘parking spot for privately owned cars’ [Rögnvaldsson 1990:29]
 - d. [[málara# meistara#] félag]
painter_{infl} master_{infl} company
 ‘master painter association’ [Snædal 1992:174]
 - e. [[byggingar# vöru#] verslun]
building_{infl} merchandise_{infl} store
 ‘hardware store’ [Jónsson 1984:173]

As mentioned above, (Rögnvaldsson 1990:35) mentions that examples of the type (37c), have a tendency to be right branching. This is corroborated by the attested examples collected for this study, which appear to be almost exclusively right branching.

- (40) MOD_{infl} — MOD_{stem} — HEAD
- a. [ummyndana# [mál# fræðingur]]
transformation_{infl} language_{stem} # scholar
 ‘transformational linguist’ [Bjarnadóttir 1996:26]
 - b. [farþega# [flug# vél]]
passenger_{infl} fly_{stem} machine
 ‘passenger aircraft’ [ÁM]
 - c. [vöru# [bif# reið]]
merchandise_{infl} move_{stem} ride
 ‘truck’ [ÁM]
 - d. [greindar# [vís-i# tala]]
intelligence_{infl} point_{stem} number
 ‘Intelligence Quotient’ [ÁM]
 - e. [samfélags# [mál# efni]]
society_{infl} speech_{stem} material
 ‘societal issues’¹³

Looking further into the data, we also notice the inverse pattern in case of compounds of type (37d), where left branching appears exclusively.

- (41) MOD_{stem} — MOD_{infl} — HEAD
- a. [[flug# umferðar#] stjóri]
flight_{stem} traffic_{infl} steerer
 ‘air traffic controller’ [Bjarnadóttir 1990:24]
 - b. [[aug# lýsinga#] stjóri]
eye_{stem} description_{infl} steerer
 ‘director of advertising’ [Jónsson 1984:167]
 - c. [[sól# stöðu#] dagur]
sun_{stem} position_{infl} day
 ‘solstice day’ [Jónsson 1984:173]
 - d. [[þing# húss#] hurð]
parliament_{stem} house_{infl} door
 ‘door to the house of parliament’ [Snædal 1992:193]
 - e. [[sjón# varps#] stöð]
sight_{stem} projection_{infl} station
 ‘television station’ [Snædal 1992:193]

¹³A Google search on Nov. 19th 2014 yielded 1600 results.

This points strongly to the conclusion that the domain of attachment for MOD_{infl} appears to be outside of the domain of attachment for MOD_{stem} as indicated by the (near) exclusive right branching of the examples such as (40). This is further supported by the fact that the compounds in (41) are exclusively left branching. If both MOD_{infl} and MOD_{stem} were equivalent, it would be expected that more varying branching possibilities would be attested for both (41) and (40). It is a reasonable hypothesis at this point, that MOD_{infl} and MOD_{stem} have different attachment sites within the word.

There are a few examples of alternations between different forms of compounding; e.g. the following examples which show synonymous compounds where the modifiers alternate between MOD_{stem} and MOD_{infl} .

- (42) a. $\text{fisk}\#\text{bollur}$ $\text{fiski}\#\text{bollur}$ $\text{fiska}\#\text{bollur}$
 $\text{fish}\#\text{balls}$ $\text{fish}_{stem}\#\text{balls}$ $\text{fish}_{infl}\#\text{balls}$
 ‘fish balls’

[Kvaran adapted from 2005:151]

- b. $\text{hest}\#\text{vagn}$ $\text{hesta}\#\text{vagn}$
 $\text{horse}\#\text{wagon}$ $\text{horse}_{infl}\#\text{wagon}$
 ‘horse drawn carriage’
- c. $\text{salt}\#\text{fisk}\#\text{tegund}$ $\text{salt}\#\text{fisks}\#\text{tegund}$
 $\text{salt}\#\text{fish}\#\text{type}$ $\text{salt}_{stem}\#\text{fish}_{infl}\#\text{type}$
 ‘a type of salt fish’

[ÁM]

[Jónsson adapted from 1984:172]

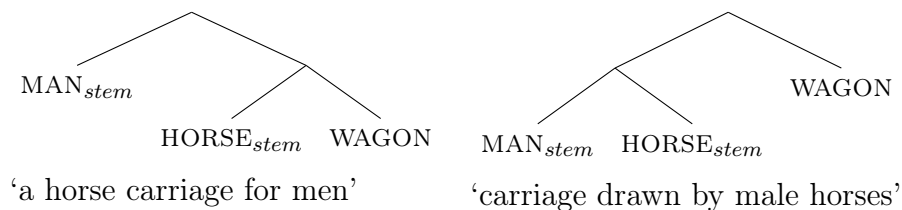
Unfortunately, attested minimal pairs contrasting the four types, i.e. four compounds containing the same three stems alternating between the four types in (37), do not seem to exist and, admittedly, I do not have an answer as to why that is. However, given that compounding is an active productive word formation process in Icelandic, the hypothesis above can be tested using (somewhat) novel compounds.

In what follows, I will discuss the limitations on the internal structure of compounds that are revealed by available ranges of meaning for each of the types in (37). All compounds are formed using the same three stems *karl*- ‘man/male’ and *hest*- ‘horse’ as modifiers and *vagn*- ‘wagon’ as head.

When the two modifiers match, i.e. either both MOD_{infl} or both MOD_{stem} , the compound is structurally ambiguous. This is illustrated for a compound with two MOD_{stem} in (43) below, where interpretations compatible with both right and left branching are available.¹⁴

- (43) a. *karl#hest#vagn*
man#horse#wagon

b

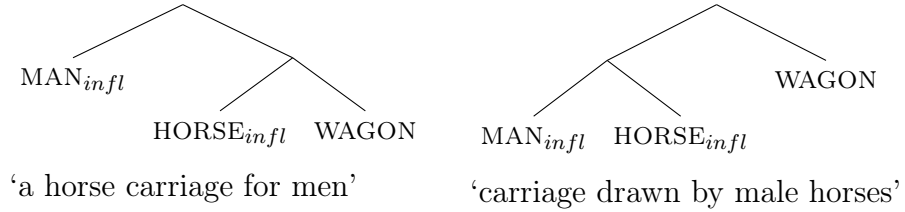


The same applies in case of compounds where both modifiers are MOD_{infl} as is illustrated in (44) below.

¹⁴It is worth noting that not all speakers accept the left branching interpretation since in their vocabulary ‘male horse’ would be e.g. *klár* and hence they reject the compound *karlhestur*. However, as mentioned above, compounding is a productive word formation process in Icelandic and hence I believe it is reasonable to abstract away from any previous knowledge of agriculture, animal husbandry and horsemanship and the associated vocabulary and simply focus on the combination of the elements and their possible interpretations. The same effects can be obtained using, e.g. *fisk*- ‘fish’, for which there is no specific male name.

- (44) a. *karl-a#hest-a#vagn*
men-GEN#horse-GEN#wagon

b

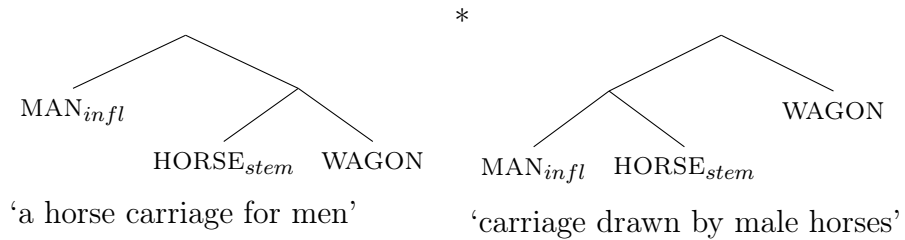


The ambiguity in (43)–(44) is expected given that both right and left branching occurs in compounds of types (37a) and (37b) as illustrated in (38) and (39).

This ambiguity is lost when the two modifiers do not match, i.e. types (37c) and (37d). In case of type (37c), MOD_{infl} — MOD_{stem} — HEAD , only interpretations consistent with a right branching structure are available.

- (45) a. *karl-a#hest#wagn*
men-GEN#horse#wagon

b

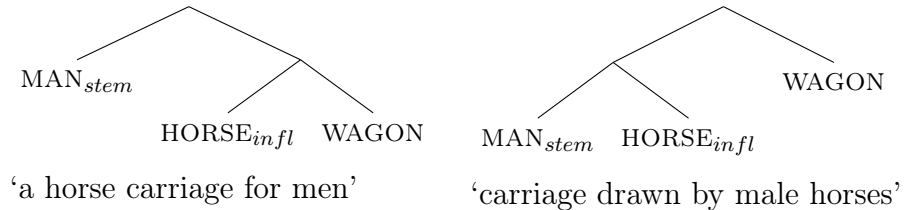


This is also expected given the pattern observed for the examples in (40).

Furthermore, in case of type (37d), MOD_{stem} — MOD_{infl} — HEAD , only left branching is available, as is illustrated in (46).

- (46) a. *karl-#hest-a#vagn*
men#horse-GEN#wagon

b *



As before, this is expected given the pattern in (41).

To sum up the discussion so far, we have seen, based on (43a)–(46a) that in a consistently right branching structure, a MOD_{infl} must be peripheral to a MOD_{stem} and in case of MOD_{stem} appearing linearly peripheral, only a left branching structure is available.

Icelandic nouns are internally complex, consisting minimally of a stem and a (possibly null) inflectional morpheme: *mann-i* ‘man-DAT’; *vagn-Ø* ‘wagon-NOM’. To a first approximation of an analysis, based on the internal complexity of nouns, I suggest that there are two potential domains at which modifiers can attach and the attachment site depends on the type of modifiers. If a modifier is a bare stem it must attach at the lower domain and if the modifier is inflected, it must attach at the higher domain. The unavailability of a right branching structure in (46a) can then be explained in these terms, namely that a right branching structure would require either MOD_{stem} to be attached too high, or MOD_{infl} to be attached too low. The left branching structures in (43a) and (44a), indicate that MOD_{stem} and MOD_{infl} contain the domains necessary to host a modifier of the same type. Finally, the availability of a left branching structure in (46a) indicates that MOD_{infl} also contains the proper domains to host either MOD_{stem} or MOD_{infl} .

2.4 Accounting for the pattern

Drawing on the works of e.g. Johnson (1990), Halle & Marantz (1993, 1994), Bobaljik (2002), Marantz (1997, 2001, 2007), Harley (2009) and Embick (2010), just to name a few, I assume that an inflected nominal has a node φ dominating the stem. φ in this case is a conflation of the various elements necessary for the realization of inflection, e.g. case, number and gender. φ will therefore be present even in simple nouns and can even be phonologically null (cf. NOM/ACC/DAT, SG: *sök-∅* ‘blame, guilt’). The structure of a word such as *manni* ‘man.DAT’ would be along the lines of the following. For the sake of presentation, I will simplify the structures in this chapter by collapsing the root and category nodes to N (see chapter 3 for a finer grained structure).

- (47) a. *mann-i*
 man-DAT.SG
 ‘man’
- b.
- ```

graph TD
 phi1["φ"] --- N["N"]
 phi1 --- phi2["φ"]
 N --- MAN["MAN"]
 N --- mann["mann-"]
 phi2 --- DAT["-DAT"]
 phi2 --- i["-i"]

```

Icelandic has four nominal cases: nominative, accusative, dative and genitive. The value of  $\varphi$  is determined by the syntactic environment. Usually, the subject receives nominative, the indirect object receives dative, the direct object receives accusative and the possessor receives genitive, although various other patterns exist (Zaenen et al. 1985, Sigurðsson 2012).<sup>15</sup>

- (48) Hest-ur      sendi hest-i      hest-∅      hest-s  
       *horse-NOM sent horse-DAT horse-ACC horse-GEN*  
       ‘A horse sent a horse a horse’s horse.’

<sup>15</sup>I set aside the question of the mechanism responsible for determining the value of  $\varphi$  in any given context.

Nominal modifiers (for the most part) agree with the noun in case, number and gender. The table below shows the weak paradigm for the adjective *góð*- ‘good’ along with the nouns *hest*- ‘horse’, *fjöður* ‘feather’, and *land*- ‘land’.

(49)

|          |     | MASCULINE                | FEMININE                             | NEUTER                            |
|----------|-----|--------------------------|--------------------------------------|-----------------------------------|
| SINGULAR | NOM | góð-ur hest-ur           | góð- $\emptyset$ fjöður- $\emptyset$ | got-t land- $\emptyset$           |
|          | ACC | góð-an hest- $\emptyset$ | góð-a fjöður- $\emptyset$            | got-t land- $\emptyset$           |
|          | DAT | góð-um hest-i            | góð-ri fjöður- $\emptyset$           | góð-u land-i                      |
|          | GEN | góð-s hest-s             | góð-rar fjaðr-ar                     | góð-s land-s                      |
| PLURAL   | NOM | góð-ir hest-ar           | góð-ar fjaðr-ir                      | góð- $\emptyset$ lönd $\emptyset$ |
|          | ACC | góð-ra hest-a            | góð-ar fjaðr-ir                      | góð- $\emptyset$ lönd $\emptyset$ |
|          | DAT | góð-um hest-um           | góð-um fjöðr-um                      | góð-um lönd-um                    |
|          | GEN | góð-ra hest-a            | góð-ra fjaðr-a                       | góð-ra land-a                     |

Unlike, e.g. adjectives and quantifiers which agree with the noun in case, the case on genitive modifiers in compounds is not affected by the syntactic context of the compound as a whole, as illustrated below (see also Indriðason 1999:119ff).

- (50) a. **Lækni**#taskan var á borðinu.  
*doctor.GEN#bag.NOM.ART.NOM was on table.ACC.ART.ACC*  
 ‘The doctor’s bag was on the table.’
- b. Bjórinna var í **lækni**#töskunni  
*beer.NOM.ART.NOM was in doctor.GEN#bag.DAT.ART.DAT*  
 ‘The beer was in the doctor’s bag.’
- c. Jón keypti **lækni**#töskuna  
*Jón bought doctor.GEN#bag.ACC.ART.ACC*  
 ‘Jón bought the doctor’s bag.’
- d. María einblíndi á galla **lækni**#töskunnar  
*María focussed on flaws.ACC doctor.GEN#bag.GEN.ART.GEN*  
 ‘María focussed on the flaws of the doctor’s bag.’

Regardless of the value assigned to  $\varphi$  of the head, the case of  $\text{MOD}_{infl}$  in (50) is always genitive, i.e. case of  $\text{MOD}_{infl}$  is valued independently of  $\varphi$  of the head of the compound, unlike e.g. coordinate compounds in Russian (see Gouskova & Roon 2009). Since case on  $\text{MOD}_{infl}$  is valued independently of the case of the compound as a whole it is reasonable to assume that  $\text{MOD}_{infl}$  does, in fact, contain its own  $\varphi$  morpheme.

Having established the relevant structure of the elements in question, the proposed structure provides the two domains observed above and an explanation for the pattern in the previous subsection. The head consists of (at least) two potential attachment sites, directly to the stem or to  $\varphi$ . Furthermore, as argued above,  $\text{MOD}_{infl}$  also contain  $\varphi$ . This can be captured by the condition below.

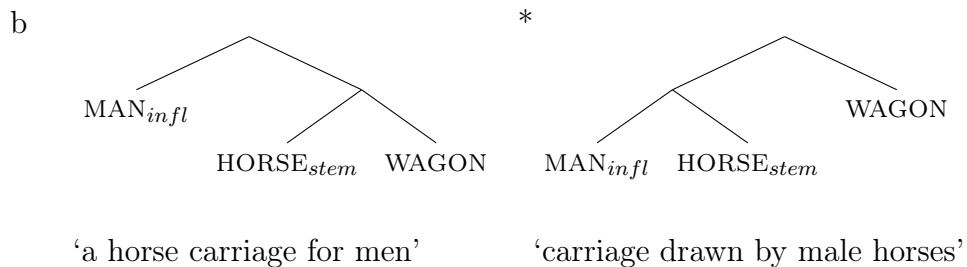
- (51) *The Matching Condition*  
Compounding merges elements of the same syntactic type.

The Matching Condition in tandem with the structure assumed will derive the pattern described in §3.  $\text{MOD}_{stem}$ , being stems, can only attach to stems and  $\text{MOD}_{infl}$ , containing  $\varphi$ , can only attach to  $\varphi$ .  $\text{MOD}_{stem}$  do not contain  $\varphi$ , and hence do not contain the necessary structure to be modified by  $\text{MOD}_{infl}$  and can thus only be modified by other  $\text{MOD}_{stem}$ .  $\text{MOD}_{infl}$ , on the other hand, contains sufficient structure to be modified by either  $\text{MOD}_{infl}$  or  $\text{MOD}_{stem}$ . Potential mechanism behind the Matching Condition will be discussed below.

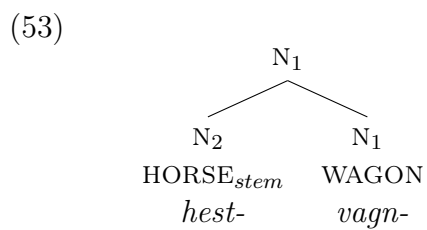
Having established the base of the analysis, we can now revisit the examples in (43a)–(46a) from above and reanalyze them accordingly. First, recall (45a) above, repeated here as (52), where a  $\text{MOD}_{infl}$  —  $\text{MOD}_{stem}$  — HEAD compound could only be analyzed as right branching.



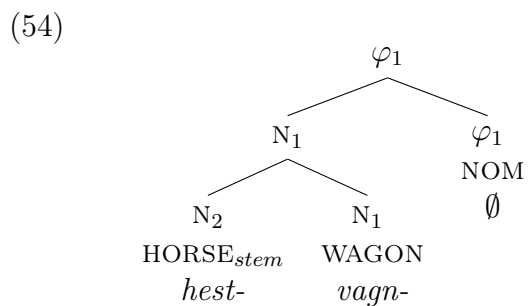
- (52) a. *karl-a#hest#vagn*  
*men-GEN#horse#wagon*



Starting with the grammatical right branching structure, the first step in building the structure is to merge  $\text{MOD}_{stem}$  with the head of the compound.

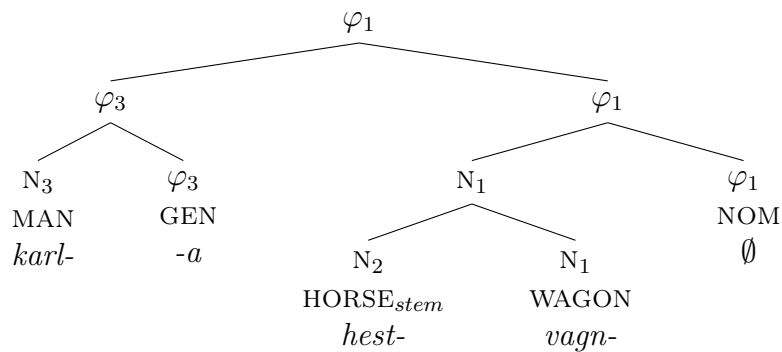


At the next step  $\varphi$  is added to the structure, providing the basis for realization of inflection.



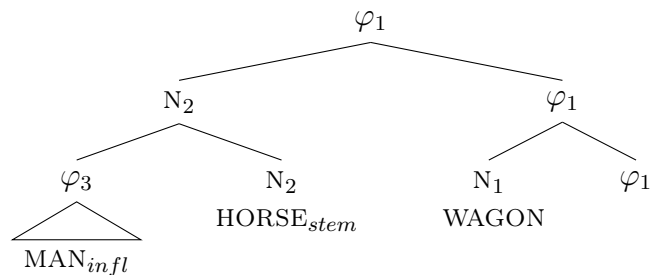
With  $\varphi$  in place,  $\text{MOD}_{infl}$  can be merged, yielding the structure below.

(55)

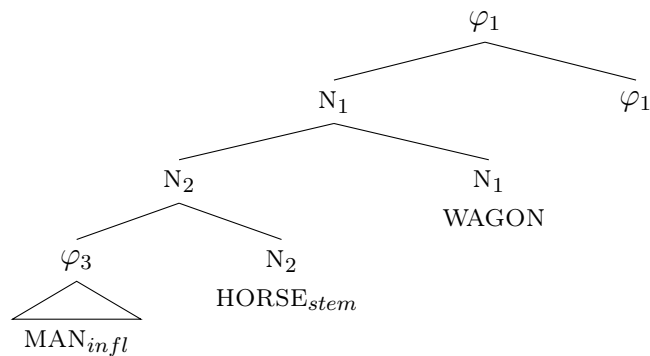


Under the approach here, the ungrammatical left branching structure in (45a) might have either of the structures below where  $\text{MOD}_{infl}$  modifies a  $\text{MOD}_{stem}$ .

(56) a. \*



b. \*



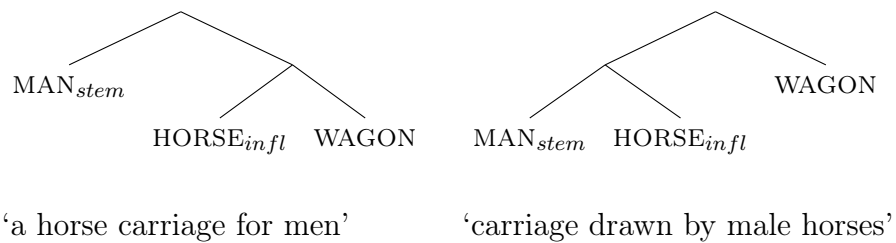
Both structures violate the matching Condition in that  $\text{MOD}_{stem}$ , a bare stem ( $N_2$ ), is being modified by a  $\text{MOD}_{infl}$ , which contains additional structure ( $\varphi_3$ ). (56a) also violates the Matching Condition in that  $N_2$  is modifying  $\varphi_1$ .

Turning to (46a), a  $\text{MOD}_{stem} \text{ --- } \text{MOD}_{infl} \text{ --- HEAD}$  compound, repeated as (57)

here below, the Matching Condition and the assumed structure derive the observed pattern.

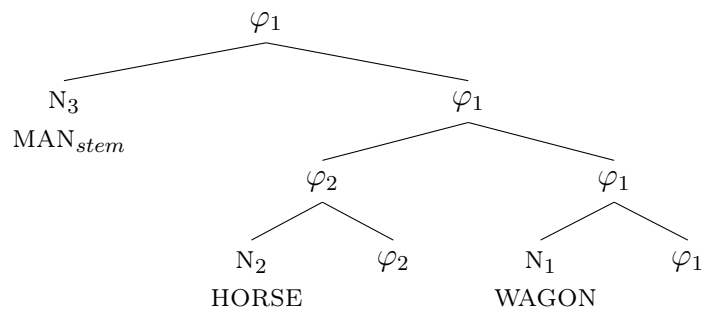
- (57) a. *karl-#hest-a#vagn*  
*men#horse-GEN#wagon*

b. \*

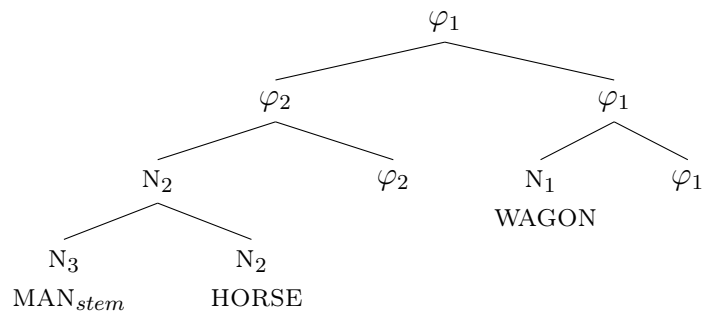


Under the assumptions made here the structures would be along the lines of the following, with the ungrammatical right branching structure in (58a) and the grammatical left branching structure in (58b).

- (58) a. \*



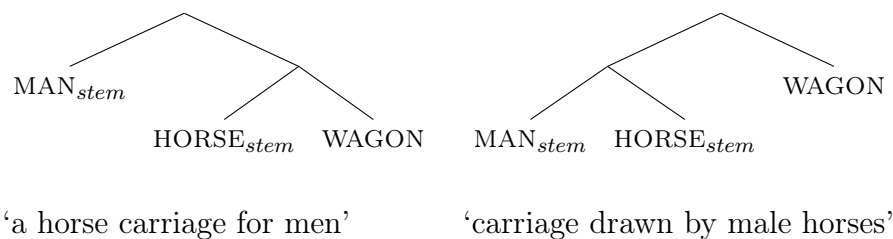
b.



As for (43a), a  $\text{MOD}_{stem} - \text{MOD}_{stem} - \text{HEAD}$  compound repeated here as (59), the ambiguity arises from the fact that both modifiers are stems, and under the Matching Condition both right- and left branching structures are available.

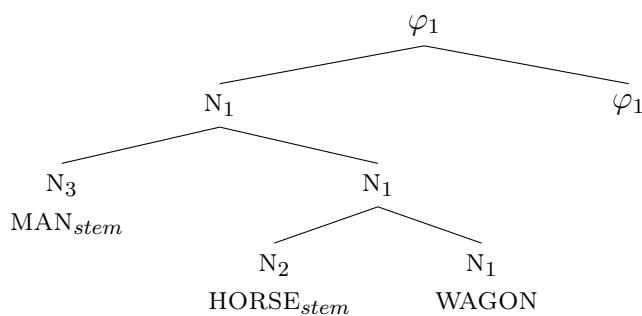
- (59) a. *karl#hest#vagn*  
*man#horse#wagon*

b

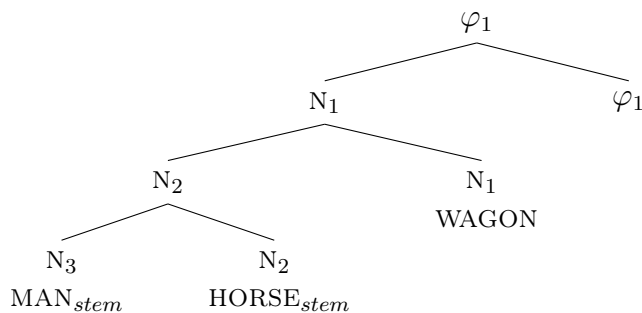


The structures in (43a) are represented under this proposal as (60), below.

- (60) a.



b.



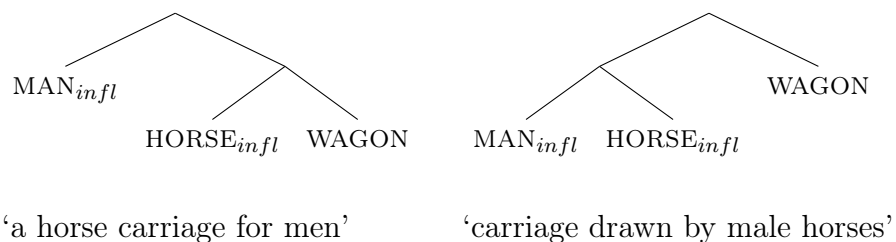
Since both modifiers are  $\text{MOD}_{stem}$ , both modifiers can attach to  $N_1$  yielding the

right branching structure.  $N_2$  also contains sufficient structure to host another  $MOD_{stem}$ .

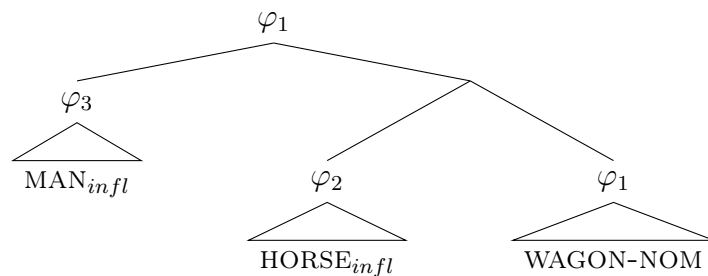
The same can be said of (44a), a  $MOD_{infl} \text{ --- } MOD_{stem} \text{ --- } HEAD$  compound repeated here as (61). The structures under the current proposal are provided in (62).

- (61) a. *karl-a#hest-a#vagn*  
*men-GEN#horse-GEN#wagon*

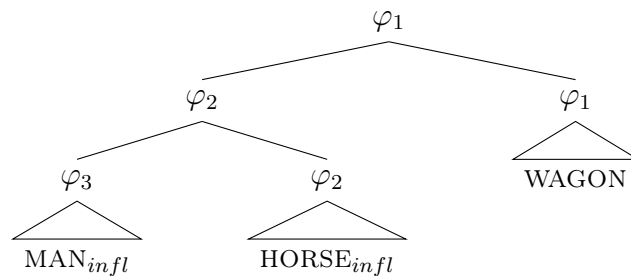
b



- (62) a.



b.



Both right and left branching structures are available since both would involve  $\varphi_3$

attaching to another  $\varphi$ .

The question of why the Matching condition would hold, has so far been unaddressed. For concreteness, I will put forward a possible explanation, but note however, more research is required before either alternative can be substantiated.

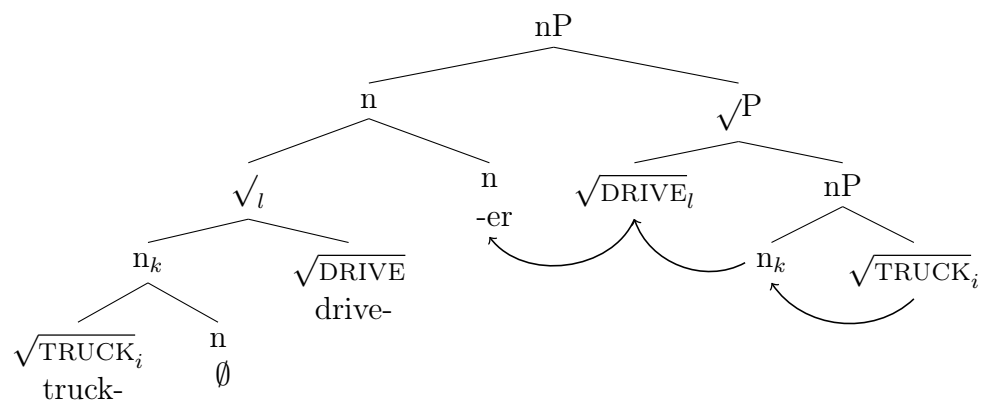
One possibility would be to relate the Matching condition to Chomsky's (2013) *Labeling Algorithm*, i.e. that the two elements must match in features in order to be labelable. The question is however, to what extent the two elements must match. It is certain that they cannot be required to match fully. If that were the case, the theory would predict that, on the one hand, only identical morphemes can be merged into a labelable structure. On the other hand, if all elements within the nominal projection are assumed to be identical in terms of the relevant features, allowing for, e.g., a root and a category node to form a labelable structure, the theory would fail to derive the Matching Condition. It is possible that the two processes, i.e. subcategorization of morphemes within the extended projection of the root and compounding, differ in terms of feature valuation. That is, the subcategorization of morphemes may result in feature valuation, whereas compounding does not. In that case the Labeling Algorithm might only require (relatively) full feature match in the absence of feature valuation.

### 2.4.1 Building a compound—A step-by-step guide

A fair question to ask at this point is how and where and why are these structures constructed. Assuming Distributed Morphology, the answer to the 'where'-question is—in syntax, but that leaves us with the 'how'-question. Traditionally compounds have been split into two groups *synthetic compounds*, where the head is a deverbal noun or adjective and the non head element corresponds to an argument or an adverbial modifier, and *root/primary compounds* (e.g. Marchand 1969, Roeper & Siegel 1978, Giegerich 2009). In lexicalist theories, synthetic compounds have sometimes

been assumed to be formed in the syntax whereas root/primary compounds (henceforth primary compounds) are assumed to be formed in the lexicon (e.g. Roeper & Siegel 1978, Fabb 1984, Roeper 1987, 1988). Under DM, a distinction in such terms is not feasible, which led to Harley (2009) sketching a unified account for the formation of both groups of compounds, where a complement of the head root is incorporated into the head root, i.e. the complement undergoes subsequent head movements to the root. This is illustrated in (63) for the syntetic compound *truck driver*.

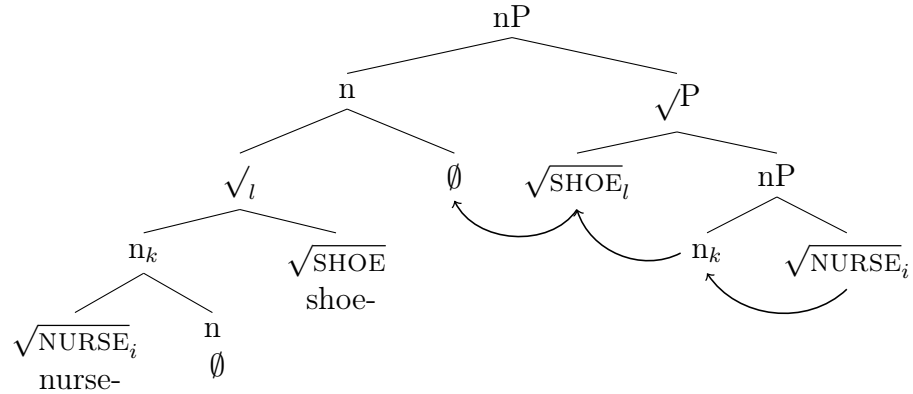
- (63) a. truck driver  
b.



[Harley 2009:136]

Primary compounds are argued to proceed in much the same manner as illustrated in (64) for *nurse shoe*.

- (64) a. nurse shoe  
b.



[Harley 2009:140]

There are, however several differences in the properties of synthetic and primary compounds that are lost under this proposal. First, there is an asymmetry in the complexity of right branching structures between the two types (e.g. Selkirk 1982, Lieber 2004).

- (65) a. \*shelf book stacker/\*book shelf stacker  
‘someone who stacks books onto shelves’  
cf. book stacker/shelf stacker  
b. crocodile nurse shoes  
‘shoes for nurses made from crocodile’

[Peter Smith, p.c.]

In (65a) the meaning associated with a right branching structure, i.e. ‘someone who stacks books onto shelves’ is not available although the left branching interpretation is available (‘someone who stacks bookshelves’). That is, in principle, consistent with Harley’s proposal. If compounding involves the incorporation of a complement, it is expected that, in a three element compound, the leftmost element starts off as the complement of the second element, etc. In fact, it is not clear how to derive a right branching structure under this proposal. That is not the case, however, with primary compounds, as is shown in (65b), where both right and left branching structures are readily available.



Another asymmetry between synthetic and primary compounds lies in the existence of (near) synonymous phrasal counterparts. As discussed above for Icelandic, it is not always the case that compounds have a phrasal counterpart, (66), although it is possible. Synthetic compounds always have a phrasal counterpart, (67).

- (66) a. daughter languages  $\not\approx$  languages of a daughter/daughters  
 b. motherland  $\not\approx$  land of a mother/mothers  
 c. nurse shoes  $\approx$  shoes of nurses
- (67) a. truck driver  $\approx$  driver of trucks  
 b. drug pusher  $\approx$  pusher of drugs  
 c. head movement  $\approx$  movement a head

Furthermore, if all compounds are formed by incorporation of a complement, examples such as (68) would indicate that it is possible to strand complements in primary compounding, but not in synthetic compounding, (69).

- (68) a. daughter languages \_ Latin  $\not\approx$  languages of daughter of Latin  
[McIntyre 2009]  
 b. motherland \_ of jazz  $\not\approx$  land of mother of jazz [Jonas Moody, p.c.]  
 c. first sister position \_ of a verb  $\not\approx$  first position of sister of a verb  
[Roeper & Siegel 1978]
- (69) a. \*son promotion \_ of one's friend cf. 'promotion of a son of one's friend'  
 b. \*head movement \_ of a VP cf. 'movement of a head of a VP'  
 c. \*name choice \_ of my child cf. 'choice of a name of my child'  
 d. \*bakehouse \_ of bread cf. 'house of baking of bread'  
(McIntyre 2009)

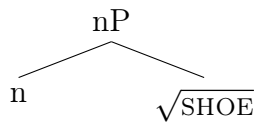
However, when the meaning of the NPs in (68) is taken into account, the comple-

ments are in fact not complements of the modifier, but of the head itself, or the compound as a whole. That is not expected if compounding is formed by incorporating a complement.

To account for these differences, I propose that primary compounds and synthetic compounds are formed in two different ways. I assume that synthetic compounds are formed by incorporation, as proposed by Harley (2009), whereas primary compounds are formed by base generating the non-head element at the appropriate level in the extended structure of the head.

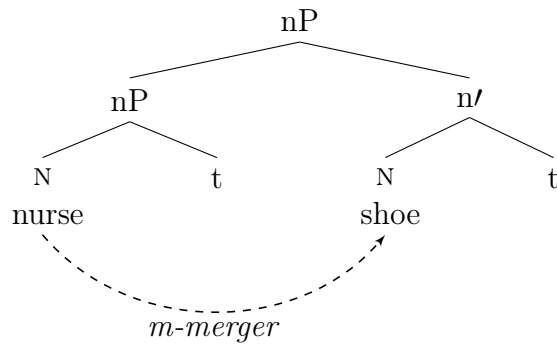
One option is to assume that the non-head element is merged as a specifier at the appropriate level within the noun phrase. Following this initial merger, the two elements then undergo morphological merger (m-merger) or conflation (drawing on Matushansky 2006) which is driven by the structural deficiency of the element (drawing on Harley 2009). A stem compound would then be formed in the following manner: First an acategorial root merges with a category node.

(70)



The root and the category node then form a complex head through head movement or possibly conflation (Harley 2004). At the next step, *n* selects for a specifier, which can be either a full DP/PP or simply an nP. Following Harley (2009), I assume that when the specifier of nP is deficient, i.e. nP, the specifier and *n* undergo morphological merger or conflation, forming a complex head.

(71)



In case of full DP/PP specifiers, no m-merger occurs and the specifier is stranded as the head moves to  $\varphi$ .

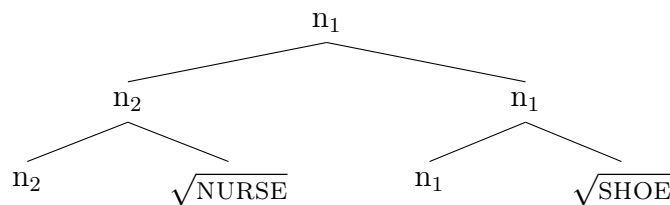
Alternatively, fully utilizing the process of conflation, the non-head element could be assembled in a separate workspace and enter the main workspace as heads rather than phrases. Just as above, the two stems are formed separately.

(72)



The non-head element, NURSE, could then be merged directly with the complex head, SHOE.

(73)



Under this approach NURSE is never a specifier of SHOE. An advantage of this approach is that it would reduce the number and type of specifiers within the noun phrase, as will be discussed in chapter 4.

Now the question arises—in what way are  $\text{MOD}_{infl}$  deficient? As discussed above,  $\text{MOD}_{infl}$  are incompatible with the definite article as in (20a) above, repeated here as (74).

- (74) \*kennarans#bíll  
*teacher.GEN.PL.ART.GEN.SG #car.NOM.SG*  
 ‘the teachers’ car’

Hence it is plausible that the boundaries of a structurally sufficient noun are established by the merger of D, as is implied by Harley & Noyer (2003), Harley (2009). Under that assumption, any non-head element in a compound is predicted to be non-referential, given the standard assumption that D encodes referentiality (cf. Abney 1987). That is not always the case (Bauer 1998) as can be illustrated with the following attested example.

- (75) So, I hear you’re a real a cat-lover. How many do you have now?

[Ward et al. 1991: 471, cited in Bauer 1998:72]

In (75), *cat* establishes a discourse referent in the first sentence. This appears to be possible in Icelandic as well.

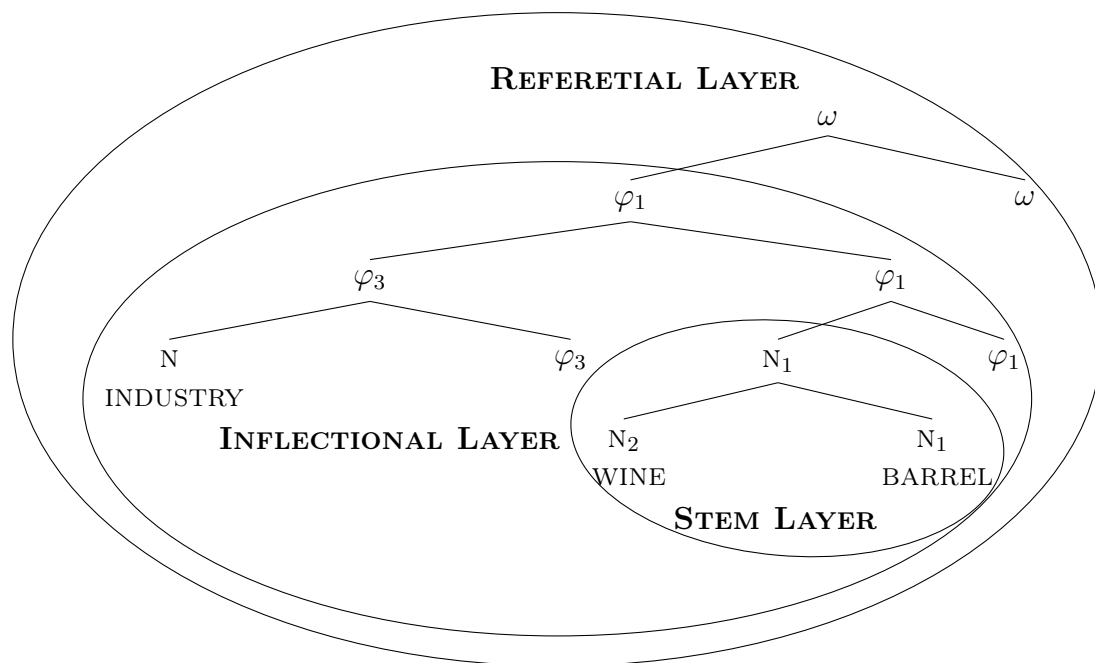
- (76) a. Ég hef heyrt að þú sért mikill **katta#unnandi**. Hvað áttu  
*I have heard that you are much cat-GEN#lover what own.you*  
*marga?*  
*many*  
 ‘I have heard that you are a real cat-lover. How many do you have?’  
 b. Ég hef heyrt að þú rekir **katta#spítala**. Hvað liggja margir  
*I have heard that you run cat-GEN#hospital what lie many*  
*inni?*  
*in*  
 ‘I have heard that you run a cat hospital. How many are hospitalized?’

Hence the non-head elements can be said to be referential despite their incompati-

bility with D. Hence it would seem necessary to encode referentiality in the absence of D.

Drawing on the works of Allen (1978), Lieber (1992), Vangsnes (1999), Julien (2005) and Faarlund (2009), i.a., I propose that the edge of the noun is marked by a head  $\omega$ . This head interacts with D (when present), and licences modifiers within the noun phrase, similar to, e.g., Dx of Vangsnes (1999) or Julien’s (2005)  $n$ , and, as its corresponding heads, could in turn be the source of the redoubled article in the North Germanic languages (Vangsnes 1999, Julien 2003, 2005, Þráinsson et al. 2004).<sup>16</sup> The absence of  $\omega$  is then responsible for the lack of referentiality of  $\text{MOD}_{infl}$ . The full structure of a compound such as *iðnaðarvín tunna* ‘industrial wine barrel’ is as shown in (77). Note that  $\sqrt{\text{ROOT}+n}$  has been collapsed to N.

- (77) a. iðnað-ar#vín#tunna  
       *industry-GEN#wine#barrel*  
       ‘industrial wine barrel’  
       b.



<sup>16</sup>Thanks to Jonathan Bobaljik for making that connection.

This proposal opens up the possibility of  $\omega$ — $\omega$  compounds. As noted above, there are cases of apparently referential non-head elements, as in (75) above. If this is the proper way of characterizing such compounds, it is predicted by the proposal developed here that such elements will always contain inflectional material. That appears to be the case with Icelandic, at least. This can be illustrated by the following example where the  $\text{MOD}_{\text{stem}}$  *salt* ‘salt’ cannot establish a discourse antecedent.

- (78) \*Ég hef heyrt að þú verkir þinn eigin salt#fisk. Hvað notarðu mikið  
*I have heard that you work your own salt#fish what use.you much*  
 á einni viku?  
*on one week*  
 ‘I have heard that you make your own salt cod. How much do you use in a week?’

That raises a question about the absence of inflection on the English example in (75), where it appears (on the surface, at least) that the non-head element is referential in the absence of inflectional material. Recall, however, that although inflectional material is generally absent from English compounds, there are some potential candidates.

- (79) a. narcotic-s law                      c. arm-s policy  
       b. new-s#man                        d. trouser-s pocket

[Warren 1978:7–8]

If the -s properly analyzed as inflection rather than a linking morpheme, examples such as these could be taken as evidence for English allowing compounding at the inflectional level to some degree. If English allows for plural  $\text{MOD}_{\text{infl}}$  in compound, it is expected, given the Icelandic facts discussed in §2, that English would also allow for singular  $\text{MOD}_{\text{infl}}$ . Since English only marks plural, a singular  $\varphi$  will always

be realized as  $\emptyset$ , and hence indistinguishable from  $\text{MOD}_{stem}$  in phonological form. However, more research is needed before anything definitive can be said about the existence and properties of  $\omega$ — $\omega$  compounds.

The proposal here offers for some interesting possibilities for accounting for the difference between synthetic and primary compounds. First, the asymmetry in the complexity of right branching structures is accounted for by the assumption that the two are formed differently. Adopting an incorporation analysis for synthetic compounds (cf. Harley 2009), and the common assumption that indirect objects are introduced by a functional head in the extended verbal projection (cf. Larson 1988, 1990, Harley 2002, Pylkkänen 2008), the restriction on the complexity of right branching structures follows if the nominalizations are missing the necessary structure to host an indirect object. In case of primary compounds, the modifiers are not syntactically/semantically selected argument and hence not subject to such constraints.

Returning to (69), repeated below, we can now tackle the question of why modifiers cannot be stranded.

- (80) a. \*son promotion \_ of one's friend cf. 'promotion of a son of one's friend'  
 b. \*head movement \_ of a VP cf. 'movement of a head of a VP'  
 c. \*name choice \_ of my child cf. 'choice of a name of my child'  
 d. \*bakehouse \_ of bread cf. 'house of baking of bread'

(McIntyre 2009)

In other cases of head movement, such as verb movement (cf. Pollock 1989, Bobaljik & Þráinsson 1998), various modifiers can be freely stranded. Compare, for instance, (81a) where the verb has moved, leaving behind an adverb *alltaf* and an object *skinku*, to (81b), where the verb remains in situ.

- (81) 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.’

Modifiers can also be stranded in traditional cases of noun-incorporation (e.g. Baker 1988a,b).<sup>17</sup> (82a) shows an instance of a stranded demonstrative pronoun and (83a) shows an instance of a stranded possessive. (82b) and (83b) show the corresponding sentences without noun-incorporation.

- (82) Mohawk
- a. ka-**nuns**-rakv [ *thikv* \_ ]  
*3NEUT-house-white that*  
 ‘That house is white.’ [Postal 1962:395 cited in Baker 1988:124]
- b. ka-hu?syi [ *thikv* ka-**hyatuhsr**-a? ]  
*3NEUT-black that PREF-book-SUFF*  
 ‘That book is black’ [Baker 1988:125]
- (83) Greenlandic
- a. [ *tuttu*-p \_ ] **neq**-itor-punga  
*reindeer-ERG meat-eat-INDIC/1SG.SUBJ*  
 ‘I ate reindeer’s meat.’ [Sadock 1980 cited in Baker 1988:129]
- b. [ *tuttu*-p **neqaa**-nik ] *neri*-vunga  
*reindeer-ERG meat-INSTR eat-INDIC/1SG.SUBJ*  
 ‘I ate reindeer’s meat.’ [Baker 1988:129–130]

Keeping with the general intuition that compound modifiers are structurally deficient, the behavior observed in (69) could stem from the absence of  $\omega$ , i.e. they lack the necessary structure to license modifiers within the NP/DP. Incorporated nouns can be referential (Baker 1988a) and hence, under the approach taken here, contain

<sup>17</sup>Although arguably so. Mithun (2010) provides arguments for certain incorporation being perhaps more related to primary compounding.



$\omega$ . Hence modifiers within the NP/DP are licensed.

## 2.4.2 Loose ends and leftovers—food for future research

There are a handful of potential counterexamples to the pattern as described above.<sup>18</sup> On the one hand, there are compounds of the type  $\text{MOD}_{infl}$ — $\text{MOD}_{stem}$ —HEAD apparently have a left branching structure. These cases fall into two classes. First, there are examples where the apparent stem is an unstressed monosyllabic element and any difference between  $\text{MOD}_{stem}$  and  $\text{MOD}_{infl}$  is neutralized. Second, there are compounds which appear to involve a kind of bracketing paradox. These compounds, consisting of elements A-B-C, seem to involve a combination of A-B and B-C, where each is independently attested. On the other hand there are  $\text{MOD}_{stem}$ — $\text{MOD}_{infl}$ —HEAD, which are apparently right branching. All of these involve nouns of the same gender and declension class.

Starting with the problematic  $\text{MOD}_{infl}$ — $\text{MOD}_{stem}$ —HEAD cases, examples of the first class are given below (adapted from Jónsson 1984). In each of these cases, the compound clearly has a left branching structure and an apparent  $\text{MOD}_{stem}$  being modified by a  $\text{MOD}_{infl}$ , violating the Matching Condition.

- (84) a. [ brúðu#        [ leik#        hús        ] ] #flokkur  
          puppet<sub>INFL</sub># play<sub>STEM</sub># house<sub>STEM</sub>    #group  
          ‘puppeteer troupe’
- b. [ sjúkra#        hús        ] #vist  
          sick<sub>INFL</sub># house<sub>STEM</sub>    #stay  
          ‘hospital stay’
- c. [ Akra#        nes        ] #höfn  
          field<sub>INFL</sub># peninsula<sub>STEM</sub>    #harbour  
          ‘Akranes harbour’
- d. [ Laugar#        ás        ] #vegur  
          pool<sub>INFL</sub># ridge<sub>INFL</sub>    #road  
          ‘Laugarás road’

<sup>18</sup>Thanks to Kristín Bjarnadóttir for bringing many of these to my attention.

A possible explanation for examples such as these, raised by Jónsson (1984), is that these apparent modstem are in fact misanalysed MOD<sub>infl</sub>. In many cases, as Jónsson (1984) mentions, orthographic variations can be found where the second element is written as either MOD<sub>stem</sub> or MOD<sub>infl</sub>, such as (83b) for which an alternative spelling *sjúkrahússvist* also exists. In that case, *hús*- ‘house’ is written as the genitive form *hús-s*. In a stressed environment, it would be possible to distinguish the two options by observing vowel and consonant length. In case of MOD<sub>stem</sub> the syllable would surface as (C)V:C and in case of MOD<sub>infl</sub>, the syllable would surface as (C)VC:. However, as Jónsson observed these elements are unstressed and hence both surface as (C)VC (see also Árnason 2011:203-206). For instance, *hús*, /hus/, surfaces as [hus:] when stressed, but the genitive *hús-s*, /hus-s/, surfaces as [hus']. In an unstressed environment, the difference between the two is neutralized and both surface as [hus]. Hence no distinction can be made using this diagnosis. It remains to be seen how this could be tested.

The second class of problematic MOD<sub>infl</sub>—MOD<sub>stem</sub>—HEAD compounds is exemplified by the compound *vörubílstjóri* ‘truck driver’ (also discussed by Rögnvaldsson 1990:28). The three elements that make up the compound are *vöru* ‘merchandise<sub>INFL</sub>’, *bíl* ‘car<sub>STEM</sub>’ and *stjóri* ‘steerer’. Given that the Icelandic word for ‘truck’ is the compound *vörubíll* (lit. merchandise car), Rögnvaldsson argues that the structure of *vörubílstjóri* is [[vöru#bíl]stjóri]. Other comparable compounds, however, denoting different types of driver, are clearly right branching, as is shown below. In case of *strætis-vagna-bíl-stjóri* ‘citybus driver’, *strætisvagn* on its own will denote ‘city bus’ (lit. ‘street wagon’), whereas *strætis-vagna-bíll*, although a potential word, would not have the meaning of ‘city bus’, but could denote a car that sometimes serves the function of a city bus or has some similarity to city buses. The same goes for other types of drivers mentioned in (85). Furthermore, on its own, the compound *bílstjóri* simply means ‘driver’, regardless of whether he is driving a car, a jeep, a truck or a

bus. In each of these cases, interpretation yields a right branching structure, *bílstjóri* forms a constituent to the exclusion of the vehicle.

- (85) a. [ *rútu*# [ *bíl*# *stjóri* ] ]  
           *bus*<sub>INFL</sub># *car*<sub>STEM</sub># *steerer*  
           ‘bus driver’
- b. [ *trukka*# [ *bíl*# *stjóri* ] ]  
           *truck*<sub>INFL</sub># *car*<sub>STEM</sub># *steerer*  
           ‘truck driver’
- c. [ *einka*# [ *bíl*# *stjóri* ] ]  
           *private*<sub>INFL</sub># *car*<sub>STEM</sub># *steerer*  
           ‘chauffeur’
- d. [ [ *strætis*# *vagna*# ] [ *bíl*# *stjóri* ] ]  
           *street*<sub>INFL</sub># *wagon*<sub>INFL</sub># *car*<sub>STEM</sub># *steerer*  
           ‘bus driver’
- e. *bíl*#*stjóri*  
           *car*<sub>STEM</sub>#*steerer*  
           ‘driver’

A way to explain *vörubílstjóri* and maintain the Matching Condition would be that *vörubílstjóri* is simply a right branching compound, but the structure is made less obvious by the existence of *vörubíll*. Although the existence of *vörubíll* does suggest a left-branching structure, in light of the evidence provided by (85), a right-branching analysis of *vörubílstjóri* is well motivated. The problem posed by the interpretation remains, however. It appears that *bíl-* is occupying two positions at the same time, making *vörubílstjóri* a good candidate for a multi dominance relation (see e.g. Citko 2006, Johnson 2007, Bhatt & Walkow 2013). Another possibility is that this is simply a case of haplology, where the underlying form of the compound *vöru-bíl-stjóri* is in fact *vöru-bíls-bíl-stjóri*, with two identical strings side by side, one *bíl-/bíls* could then have been deleted.

Finally there are the cases of problematic  $\text{MOD}_{\text{stem}}\text{---}\text{MOD}_{\text{infl}}\text{---}\text{HEAD}$ . These

cases appear to be rare and include examples as the ones in (86).<sup>19</sup>

- (86) a. hör#[ vasa# klútur ]  
*flax*<sub>STEM</sub> # *pocket*<sub>INFL</sub> # *cloth*  
 ‘linen handkerchief’
- b. silki#[ kodda# ver ]  
*silk*<sub>STEM</sub> # *pillow*<sub>INFL</sub> # *case*  
 ‘silk pillow case’
- c. tré#[ penna# standur ]  
*tree*<sub>STEM</sub> # *pen*<sub>INFL</sub> # *stand*  
 ‘wooden pen stand’
- d. plast#[ penna# standur ]  
*plastic*<sub>STEM</sub> # *pen*<sub>INFL</sub> # *stand*  
 ‘plastic pen stand’
- e. hár#[ raka# mælir ]  
*hair*<sub>STEM</sub> # *humidity*<sub>INFL</sub> # *measurer*  
 ‘hygroscope’
- f. skák#[ tíma# rit ]  
*chess*<sub>STEM</sub> # *time*<sub>INFL</sub> # *writ*  
 ‘chess magazine’
- g. fisk#[ hnífa# pör ]  
*fish*<sub>STEM</sub> # *knife*<sub>INFL</sub> # *pairs*  
 ‘fish cutlery (cutlery for eating fish)’

In overwhelming majority of such cases known to me involve a non-count noun of the strong neuter declension class, such as *hör* ‘flax’, *silki* ‘silk’, *tré* ‘tree’, *plast* ‘plastic’ and *hár* ‘hair’ above. These nouns receive the ending *-s* in the genitive singular and do not have plural forms.<sup>20</sup> Given that these fall into an identifiable subset, it is possible that these involve a  $\emptyset$  allomorph of the genitive suffix that is conditioned by its position as a compound modifier. Such cases are known independently, where, e.g., the name *Sigurð* can take either the genitive suffix *-ar* or *-s*. In patronyms,

<sup>19</sup>Kristín Bjarnadóttir, p.c., reported to have found close to 60 such compounds in ÁM. It remains to be seen, however, what the definitive number will ultimately be.

<sup>20</sup>Some of these can be used as either count or non-count nouns.

which are formed with the father's first name as a  $\text{MOD}_{infl}$  and either *son* 'son' or *dóttir* 'daughter' as the head, the form of the genitive suffix on *Sigurð* depends on the head.

- (87) a. *Sigurð-ar#dóttir*                      b. *Sigurð-s#son*  
       *Sigurð-GEN#daughter*                *Sigurð-GEN#son*  
       'Sigurð's daughter'                    'Sigurð's son'

This is further corroborated by the fact that an overt genitive suffix seems impossible in many of these compounds.

- (88) a. *\*hör-s#[ vasa# klútur ]*  
       *flax-GEN#pocketINFL#cloth*  
       'linen handkerchief'  
       b. *\*silki-s#[ kodda# ver ]*  
       *silk-GEN#pillowINFL#case*  
       'silk pillow case'  
       c. *\*tré-s#[ penna# standur ]*  
       *tree-GEN#penINFL#stand*  
       'wooden pen stand'  
       d. *\*plast-s#[ penna# standur ]*  
       *plastic-GEN#penINFL#stand*  
       'plastic pen stand'

Which leaves the last two listed in (86), *skáktímarit* and *fiskhnífapör*. The offending  $\text{MOD}_{stem}$  here, *skák* 'chess' and *fisk* 'fish', differ from the other examples discussed in that they belong to the strong feminine and strong masculine declension classes respectively. There are still some commonalities. First, as in (88), *skák* does not allow for an overt genitive suffix:

- (89) a. *\*skák-ar#tíma#rit*  
       *chess-GEN.SG#timeINFL#writ*  
       b. *\*skák-a#tíma#rit*  
       *chess-GEN.PL#timeINFL#writ*

As for *fisk*, however, it is not the case that an overt genitive suffix is impossible, but the possible range of meanings is widened. In case of *fisk#hnífaþör*, the meaning appears to be restricted to ‘cutlery for the purposes of eating fish’, whereas *fisk-a#hnífaþör* has a less restricted range of meanings. It can be synonymous or it can mean ‘cutlery made from fish’ or ‘cutlery for fish to use’, etc.<sup>21</sup> It is possible then that both *skák* and *fisk* are in fact behaving as non-count nouns in (86) and the allomorphy could then be extended to other strong non-count nouns.<sup>22</sup>

To sum up this section, although there are some apparent counterexamples to the Matching Condition, the examples appear to fall into clearly identifiable categories. Although further study is needed, each category comes with a plausible explanation, that is compatible with the Matching Condition.

## 2.5 Summary

In this chapter, I have presented a partially unnoticed pattern in the distribution of non-head elements in Icelandic compounds where inflected non-head modifiers appear to be structurally peripheral to uninflected modifiers. To account for the pattern, I proposed that compounding takes place at multiple layers within the structure of the word, and any non-head element must match the potential attachment site in terms of syntactic type or size. These layers are marked by four morphemes in the extended projection of the root: an acategorical root, a category node, a head  $\varphi$  which is necessary for the realization of inflection, and  $\omega$  which

<sup>21</sup>Recall also, as I argued above, that the *-i-* in *fisk-i#bollur* ‘fishballs’ is not a linking morpheme but a nominalizer. This nominalizer yields a strong neuter non-count noun. Nouns with the *-i* nominalizer pattern with the neuter nouns in (86) and (88).

<sup>22</sup>An alternative explanation for *skáktímarit* and *fiskhnífaþör* would be that *tímarit* and *hnífaþör* are special. *Tímarit* could potentially be argued to be a *calque*, i.e. a compound that has been adopted through translating a compound from another language, cf. Danish *tidskrift* and German *Zeitschrift*. Such compounds are known to behave differently from native compounds (see e.g. Vogel 1990 or Scalise 1986:110–122 on Italian). *Hnífaþör* could be argued to be a case of lexicalization, i.e. that the compound has been reanalyzed as a single stem. The compound has become semantically opaque, where the compound refers to cutlery and not a pair of knives (see e.g. Giegerich 2009). The allomorphy above could then be restricted to strong neuter non-count nouns.

encodes referentiality.

Furthermore, I proposed cross-linguistic variation in the availability of the different layers for compounding, where Icelandic freely allows compounding at the stem and inflectional layers (and possibly at the referential layer) but does not appear to allow compounding at the root level. English, on the other hand, does not freely allow compounding at the inflectional layer, whereas compounding at the stem and possibly root layer appears to be more freely available.

Additionally, I argued for separate ways of forming synthetic and primary compounds, where synthetic compounds are formed by incorporating a structurally deficient argument (following Harley 2009), whereas primary compounds are formed by base generating the non-head elements in their position. The absence of stranded modifiers in case of synthetic compounds was tied to their structural deficiency, i.e. the lack of  $\omega$ , which was argued to be necessary for licensing DP-internal arguments.

## Appendix to chapter 2: Linkers vs. Inflection

The generalization established in this chapter makes a distinction between inflected and uninflected modifiers. However, uninflected modifiers are not necessarily bare since Icelandic has four linking morphemes, *-a*, *-i*, *-u*, and *-s* (Rögnvaldsson 1990:27–37, Kvaran 2005:155–157 and references cited therein). Nevertheless the linkers can be distinguished from inflection. Of the four linkers, three are homophonous with genitive endings: *-a*, *-u* and *-s* but, crucially not the genitive endings expected for the stems in question. For instance, in (90a), the noun *drasl* is a neuter mass noun whose genitive suffix is *-s*. Being a mass noun, *drasl* has no plural inflection hence the genitive suffix *-a* never appears in its inflection. In case of  $\text{MOD}_{infl}$ , the case suffix is entirely predictable from the stem. This is further illustrated in (90).

- (90) a. drasl-a#skápur    cf. drasl-s    vs. karl-a  
           *junk-L#closet*        *junk-GEN.SG*        *man-GEN.PL*  
           ‘junk closet’
- b. fell-i#bylur  
       *fell-L#storm*  
       ‘hurricane’
- c. ök-u#maður    cf. ak-stur-s    vs. kon-u  
       *drive-L#man*        *drive-n-GEN.sg*        *woman-GEN.SG*  
       ‘driver’
- d. athygli-s#verður cf. athygli-Ø    vs. karl-s  
       *attention-L#worthy*    *attention-GEN.SG*    *man-GEN.SG*  
       ‘interesting’

The linkers in Icelandic appear to be more in line with linkers in West-Germanic (see e.g. Krott et al. 2007, Neef 2009, Nübling & Szczepaniak 2013). Although the linkers do not correspond to the expected case suffixes, they do appear to be partly predictable based on properties of the stem they attach to, although the choice of stems is not necessarily so.

First, the linker *-a* only seems to appear with neuter mass-noun stems for which plural inflection is impossible: *dót* (‘stuff’), *drasl* (‘junk’), *rusl* (‘trash’), *vit* (‘sense/reason’), *tóm* (‘emptiness’) (see e.g. Kvaran 2005:155 and Indriðason 1999:116).

The linker *-i*, seems to be bound to verbal stems, as in the examples given below (adapted from Kvaran 2005:156).

- (91) a. fell-i#bylur    cf. fall    vs. fella-a  
           *fell-L#storm*        *fall*        *make.fall-INF*  
           ‘hurricane’
- b. fleyg-i#ferð    cf. flug    vs. fleygj-a  
       *fling-L#movement*    *flight*        *fling-INF*  
       ‘very high speed’



- |    |                                                                |     |                               |     |                              |
|----|----------------------------------------------------------------|-----|-------------------------------|-----|------------------------------|
| c. | hreins-i#vökvi<br><i>clean-L#liquid</i><br>'cleaning liquid'   | cf. | hreins-un<br><i>clean-n</i>   | vs. | hreins-a<br><i>clean-INF</i> |
| d. | al-i#grís<br><i>raise-L#piglet</i><br>'piglet raised for food' | cf. | öl-un/eld-i<br><i>raise-n</i> | vs. | al-a<br><i>raise-INF</i>     |

There are however several nominal stems that have been claimed to have the linker *-i*, such as the following examples (adapted from Kvaran 2005:151–155). For both *eld-* and *fisk-* there exist  $\emptyset$ -derived verbal forms with a meaning that is absent from the compounds in question.

- |      |    |                                                      |     |                                            |     |                           |
|------|----|------------------------------------------------------|-----|--------------------------------------------|-----|---------------------------|
| (92) | a. | eld-i#viður<br><i>fire-L#wood</i><br>'firewood'      | cf. | eldur<br><i>fire</i>                       | vs. | eld-a<br><i>cook-INF</i>  |
|      | b. | fisk-i#bollur<br><i>fish-L#balls</i><br>'fish balls' | cf. | fiskur/fiski<br><i>fish/fishing, catch</i> | vs. | fisk-a<br><i>fish-INF</i> |

In case of *eld-*, the verb *eld-a* has an idiosyncratic meaning ('cook') that is not present in the compound *eld-i-viður* ('firewood'), where the non-head element has the meaning consistent with the nominal form *eld-ur* ('fire'). Similarly, the meaning of *fisk-* ('fish') in *fisk-i-bollur* ('fishballs') is consistent with a nominal interpretation and not a verbal one. There are two alternatives at this point: On the one hand, the generalization above is wrong and the linker *-i* is not bound to verbal stems, or, on the other hand, these may have been misanalyzed as is indicated by the existence of *fisk-i* ('fishing/catch') which contains a nominalizing morpheme *-i* and whose meaning could arguably be said to be present in the compound. This nominalizing morpheme can have an agentive meaning as in *-ber-i* ('carrier' from *bera* 'carry'), denote a type (*-gres-i* from *gras* 'grass')<sup>23</sup> or a simple nominalizer (*fræði*, 'study')

<sup>23</sup>It should be noted that in many cases certain stems only occur with the nominalizer *-i* in compounds or certain derivation, cf. *ljósberi* 'torchbearer' or *blágresi* 'bluegrass'.

from *fróður* ‘knowledgable’) depending on the root/stem it attaches to. The linker and nominalizer also differ in that the nominalizer triggers umlaut, as in *gras* ~ *gres-i* where the stem vowel changes from /a/ to /ε/. The linker does not trigger umlaut, as can be seen from 2.5 above, where no vowel change occurs in the presence of the linker: *al-* ~ *al-i-*.

The linker *-u* at first appears to be bound to verbal stems. Contrary to *-i* above, however, it appears to trigger u-umlaut in case of (93b) and (93d). (93d) points, however, to it may not being the linking morpheme that is triggering the umlaut, but a null nominalizer. (examples (93a)–(93b) adapted from Kvaran 2005:156 and (93c)–(93d) from Indriðason 1999:116).

|      |    |                                                                   |     |                                    |     |                                            |
|------|----|-------------------------------------------------------------------|-----|------------------------------------|-----|--------------------------------------------|
| (93) | a. | <i>ráð-u#nautur</i><br><i>advice-L#giver</i><br>‘adviser’         | cf. | <i>ráða</i><br><i>advise.INF</i>   | vs. | <i>ráð</i><br><i>advice</i>                |
|      | b. | <i>ök-u#maður</i><br><i>drive-L#man</i><br>‘driver’               | cf. | <i>aka</i><br><i>drive.INF</i>     | vs. | <i>akstur</i><br><i>driving</i>            |
|      | c. | <i>skip-u#lag</i><br><i>arrange-L#procedure</i><br>‘arrangement’  | cf. | <i>skipa</i><br><i>arrange.INF</i> | vs. | <i>skipan/skipun</i><br><i>arrangement</i> |
|      | d. | <i>för-u#neyti</i><br><i>trip-L#company</i><br>‘travel companion’ | cf. | <i>fara</i><br><i>leave.INF</i>    | vs. | <i>för</i><br><i>trip</i>                  |

The root/stem *far-* undergoes u-umlaut when nominalized and in fact the nominal meaning is present in the compound *för-u-neyti* rather than the verbal one, i.e. ‘trip’ and not ‘go/leave’.<sup>24</sup> Hence the umlaut observed in (93b) could be the result of the same null nominalizer responsible for the umlaut in *för*. Hence it would seem that the linker *-u* is associated with deverbal nominal stems rather than verbal

<sup>24</sup>The same can, in principle be said about the other examples, however, the distinction between the verbal and nominal meaning is less clear in those examples. Note however that historically, *ráð* in Old Icelandic was *rǫð* [rɔ:ð] due to u-umlaut (Iversen 1974:20–21). /ǫ/ has since merged with /á/ which has developed into the diphthong /au/ in Modern Icelandic, thus occluding a process that is still active and visible in *för*.

stems.

Finally the linker *-s* appears to be associated with feminine nominal stems ending with /i/ that usually do not allow plural morphology and show great deal of syncretism in the singular paradigm (e.g. Jónsson 1991, Barðdal 1992, Indriðason 1999:116). The following examples were adapted from (Indriðason 1999:116).

- (94) a. keppni-s#maður                      cf. keppni              vs. keppa  
           *competition-L#man*                      *competition*              *compete*  
           ‘a competitive man’
- b. leik#fimi-s#hús                      cf. leikfimi  
           *play#agility-L#house*                      *sports*  
           ‘sports facility’
- c. bræði-s#kast                      cf. bræði              vs. bráður  
           *rage-L#throw*                      *rage*                      *rash*  
           ‘a fit of rage’

(Indriðason 1999:117) mentions *áhrif-s-breyting* (‘analogy’) and *tengdason-s-helvítið* (‘jackass of a son-in-law’) as a potential counterexamples to that generalization. First, *áhrif* is a neuter noun that only exists in plural, hence a true genitive ending could be *-a*. However, *-s* is a common realization of genitive singular for neuter nouns, and since *áhrif-* never occurs in the singular, the form *áhrif-s* never occurs in the paradigm. It is possible, given the arbitrariness of number in compounds, that *áhrif-s-breyting* really is a case of genitive compounding. The arbitrariness of number on non-head elements allows for a singular form that cannot occur otherwise. Likewise, *tengdasonur* is a masculine noun for which the genitive singular ending usually is *-ar*. The genitive singular ending *-s* can also be found outside of compounds, albeit quite rarely.

The linking morphemes are not obligatory in all contexts. For instance it is not uncommon for a pair of synonymous compounds to exist, where one has the linker morpheme, e.g. *drasl-a#skápur* and the other one does not, e.g. *drasl#skápur*, both meaning ‘junk closet’. This not always the case, however. In some cases the

two compounds are not synonymous as e.g. *rusl-a#bill* meaning ‘garbage truck’ and *rusl#bill* meaning ‘crappy car’.

The important distinction for the purposes of this dissertation is between inflected,  $MOD_{infl}$ , and uninflected modifiers,  $MOD_{stem}$ .  $MOD_{stem}$  may or may not include a linker, but this difference does not have any implication for present concerns. This is illustrated below, where two compounds in (95) have the same meaning whether  $MOD_{stem}$  has a linker (95b) or not (95a).

- (95) a. skól-a#drasl#skápur  
           *school-GEN#junk#closet*  
           ‘junk closet in a school/\*closet for school junk’
- b. skól-a#drasl-a#skápur  
           *school-GEN#junk-L#closet*  
           ‘junk closet in a school/\*closet for school junk’

Both with and without the linker, the interpretation which would group ‘junk’ and ‘school’ as a constituent to the exclusion of ‘closet’ is excluded. Hence the linker modifiers will not be discussed specifically from here on.

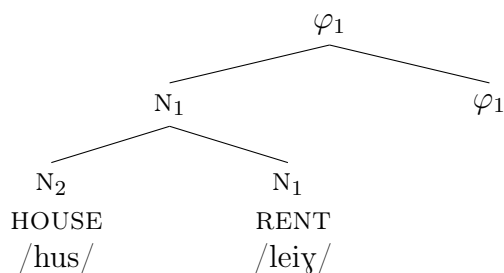
# Chapter 3

## Domains

To sum up the discussion so far: in the previous chapter we saw that in a consistently right branching structure,  $\text{MOD}_{infl}$  always appear peripheral to  $\text{MOD}_{stem}$ . Furthermore, in case the of  $\text{MOD}_{stem}$  linearly preceding  $\text{MOD}_{infl}$ , only a left branching structure is available. This was explained with reference to the structure of nouns in Icelandic, where nouns always consist of at least a stem and an inflectional morpheme. I then argued that the structure of the noun offered two potential attachment sites proposing the Matching Condition in (26), requiring modifiers to match their attachment site, i.e.  $\text{MOD}_{infl}$  must attach at  $\varphi$  and  $\text{MOD}_{stem}$  attach to the stem.

With the structure in place, a question arises with regards to phonological domains. That is in a structure such as (1a) below, with the linear order in (1b), various phonological interactions occur between the head *rent* and  $\varphi_1$ , but never between *RENT* and *HOUSE* (Árnason & Pind 2005:304, Árnason 2011:206–2061 Indriðason (1994)).

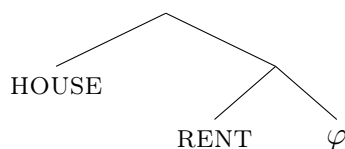
(1) a.



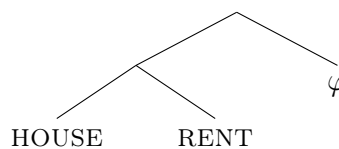
b. HOUSE – RENT – GEN.PL

If we were to only make reference to the linear string in (1b), it does not seem sufficient to explain the interactions (or a lack thereof) between the elements. HOUSE is adjacent to RENT and so, in principle RENT should be able to interact with HOUSE. Making reference to the hierarchical structure in (2a), however yields an apparent paradox, since morphophonology implies the structure in (1a). (2b) restates (1a) for comparison.

(2) a.



b.



I argue that the apparent paradox is a result of mapping of the structure in (1a) to phonological form, i.e. although, given the structure assumed here,  $\varphi_1$  and RENT, do not form a constituent to the exclusion of HOUSE. HOUSE constitutes a domain by itself, i.e.  $N_2$ , whereas the domain of RENT is the entire structure, i.e.  $\varphi_1$ . Hence what seems at first to be a non-constituent domain is in fact a domain that encompasses the entire structure and also contains smaller inaccessible domains within it. Specifically I argue that these domains are defined by the highest functional morpheme associated with each root. It is hence predicted that roots, in the absence of other functional material, will not form a morphophonological domain on their own. In case of root-root compounds, a head and a non-head element can hence interact

in ways that are two stems cannot. Furthermore, despite the apparent asymmetry between the phonological and morphosyntactic structures, it is not necessary to assume an independent prosodic structure (e.g. Selkirk 2011, Cheng & Downing 2016), but the morphosyntactic structure can be mapped directly to phonology (Kratzer & Selkirk 2007, D’Alessandro & Scheer 2015:e.g.).

I adopt in this dissertation the relatively standard assumption that the syntactic derivation proceeds in “chunks”, i.e. domains, cycles or phases (Chomsky e.g. 1965 et seq.). In DM, these chunks have been of considerable importance as the boundaries of words (Compton & Pittman 2010, Marantz 2007), and also as boundaries for various processes within the word (e.g. Embick 2010, Marantz 2013, Bobaljik & Wurmbrand 2013). The question then rises: Do all processes within the word abide by the same locality restrictions? I argue that the answer is—no. Much like we see with e.g. short-distance binding and variable binding, within the word we also observe different locality constraints between contextual allomorphy and morphophonology (or readjustment in the terminology of Chomsky & Halle 1968, Halle & Marantz 1993, 1994, Embick 2010). The domain of contextual allomorphy, as is well established, has a highly local domain (Marantz 1997, 2007, Embick 2010, Bobaljik 2012, Moskal 2015b,a, Smith et al. 2015), whereas the domain for morphophonology appears to span the entire extended projection.

In this Chapter, I explore this in detail, as well as other potential boundaries. The chapter is organized as follows. In the following section, I provide an account of morphosyntactic-morphophonological structural mismatch. I propose that morphophonological domains are defined contextually, by the highest functional projection associated with the root. In §2, I provide further support for the account in §1 using evidence from umlauts, showing dynamic cyclicity at work within single stem words. In §3, I extend the approach in §1 to classical cases of bracketing paradoxes. Finally, in section §4, I discuss some semantic boundaries observed in

Icelandic compounds and the boundaries of the word.

### 3.1 Compounding vs. affixation

There are a number of phonological processes that are either triggered by morphological features or are constrained by the morphosyntactic structure. These processes apply freely between a base and an affix, but do not apply between two stems in compounds (Árnason & Pind 2005:305, Árnason 2011:260–261, Rögnvaldsson 1993, Indriðason 1994). The examples below have been adapted from (Árnason 2011:260–261) and Rögnvaldsson (1993).<sup>1</sup>

First, there is preaspiration, where stops become preaspirated when followed by /l/ or /n/, both within morphemes and across morpheme boundaries.

(3) Preaspiration: {p,t,k} → [+preaspirated] / \_ (+) {l,n} ... #

|    |               |                      |                            |
|----|---------------|----------------------|----------------------------|
| a. | lota          | lotna                | brot#lenda                 |
|    | [lɔːta]       | [lɔhtna]             | [prɔːtlɛnta]/*[brɔhtlɛnta] |
|    | round.NOM.SG  | round.GEN.pl         | ‘to crash land’            |
| b. | sjúkur        | sjúklingur           | bak#land                   |
|    | [sjuːkʏr̥]    | [sjuhkliŋkʏr̥]       | [paːklant]/*[pahklant]     |
|    | sick.NOM.MASC | sick.DIM (‘patient’) | ‘hinterland’               |

Second, there is occlusion, where /v/ and /ʏ/ become stops when followed by /n/, both within morphemes and across morpheme boundaries. Note that Icelandic does not include voiced stops in its inventory of sounds, hence the change in voicing is not directly due to this process.

<sup>1</sup>Note that although not shown below, most of these processes do apply morpheme-internally as well (see e.g. Indriðason 1994).



(4) Occlusion:  $\{v, \gamma\} \rightarrow [-\text{continuant}] / \_ (+) n \dots \#$

|    |                                  |                                     |                                                  |
|----|----------------------------------|-------------------------------------|--------------------------------------------------|
| a. | dúfa<br>[tuɪva]<br>dove.NOM.SG   | dúfna<br>[tupna]<br>dove.GEN.pl     | of#nota<br>[ɔvnɔta]/*[ɔpnɔta]<br>‘to overuse’    |
| b. | hagur<br>[hagʏr̥]<br>‘wellbeing’ | hagnaður<br>[haknaðʏr̥]<br>‘profit’ | hag#nýta<br>[hagɲita]/*[haknita]<br>‘to utilize’ |

T-insertion applies when /r/ or /s/ is followed by /l/ or /n/, both within morphemes and across morpheme boundaries.

(5) T-insertion:  $\emptyset \rightarrow t / \{r, s\} \_ (+) \{l, n\} \dots \#$

|    |                              |                                |                                                             |
|----|------------------------------|--------------------------------|-------------------------------------------------------------|
| a. | eyra<br>[eɪra]<br>ear.NOM.SG | eyrna<br>[eɪrna]<br>ear.GEN.SG | hár#næring<br>[haurnairɪŋk]/*[hartnairɪŋk]<br>‘conditioner’ |
|----|------------------------------|--------------------------------|-------------------------------------------------------------|

Velar stops become palatalized when followed by a front vowel, both within morphemes and across morpheme boundaries.

(6) Palatalization:  $/k/ \rightarrow [c] / \_ (+) V_{[+front]} \dots \#$

|    |                              |                                |                                                     |
|----|------------------------------|--------------------------------|-----------------------------------------------------|
| a. | þak<br>[θaɪk]<br>roof.NOM.SG | þaki<br>[θaɪci]<br>roof.DAT.SG | fúk#yrði<br>[fuɪkɪrði]/*[fuɪcɪrði]<br>‘obscenities’ |
|----|------------------------------|--------------------------------|-----------------------------------------------------|

Finally, when two vowels appear adjacent accross morpheme boundaries, the left vowel is deleted if it is unstressed.

(7) Vowel deletion:  $V_{[-stress]} \rightarrow \emptyset / \_ (C) + V$

|    |                                  |                                    |                                                |
|----|----------------------------------|------------------------------------|------------------------------------------------|
| a. | reipi<br>[rei:pi]<br>rope.NOM.SG | reipum<br>[rei:pym]<br>rope.DAT.PL | veldi#ás<br>[vɛl̥tɪaus]/*[vɛl̥tɪaus]<br>‘axis’ |
|----|----------------------------------|------------------------------------|------------------------------------------------|

As is shown above, each of these processes apply freely across morpheme boundaries, but do not apply between stems in compounds.

There are a handful of exceptions to that generalization where some of these processes occur between two stems, as in the examples below, taken from Indriðason (1994: 63, 73).

- (8)    a.    *fisk#eldi*  
               /*fisk/#/ɛldi/*  
               [*fiscɛldi*]  
               ‘fish farming’
- b.    *vit#laus*  
               /*vit/#/lœys/*  
               [*vihtlœys*]  
               ‘wrong/stupid’ (lit. ‘senseless’)

In (8a), palatalization on *fisk* is triggered by /ɛ/ in *eldi* and in (8b) /l/ in *laus* triggers preaspiration of /t/ in *vit*.<sup>2</sup> These exceptions are quite rare and do not hold for other compounds involving the same elements. For instance, /l/ in *laus* does not trigger preaspiration of /k/ in the following example.

- (9)    *bak#laus*  
           /*bak/#/lœys/*  
           [*ba:klœys*]/\*[*bahklœys*]  
           ‘backless’

The explanation for the exceptions above may lie in the morphosyntactic structure, as will be discussed below, i.e. that the point of attachment is lower in case of the

<sup>2</sup>Note that the case of *laus* is not analogous to the English suffix *-less*. The adjectival stem *laus* occurs independently outside of compounds:

- (i)    a.    *laus úr haldi*  
               *loose from hold*  
               ‘free from imprisonment’
- b.    *laus við vesen*  
               *loose with problems*  
               ‘free from problems’

Furthermore, like stems in compounds but unlike affixes, *laus* obligatorily bears stress when attached to trisyllabic elements:

- (ii)    a.    *'hugsun-ar#laus*  
               *thought-GEN#loose*  
               ‘thoughtless/subconscious’
- b.    *\*'hugsun-ar#laus*  
               *thought-GEN#loose*

Hence *laus* is correctly analyzed as a stem and not an affix (contra e.g. Indriðason 1994).

exceptional cases than it is for the regular cases, or it may be the case that the exceptional cases may be lexicalized and hence not morphosyntactically compositional. In either case, the exceptional compounds will be missing the boundaries that block the application of the rules above.

The i- and u-umlauts in Icelandic also behave in similar ways to the processes discussed above although they seem less phonological in nature (e.g. Anderson 1969a, 1974). Unlike the processes above, however, these are only triggered by affixes, both overt and null and when they are examined more closely, it becomes clear that these processes are morphologically triggered. Starting with the i-umlaut, the process triggers the following vowel changes in certain stems in a particular morphological environment.

(10) Vowel alternation in i-umlaut (adapted from Árnason 2011:240)

|                  |   |      |
|------------------|---|------|
| /a/, /ɔ/, /œ/    | → | /ɛ/  |
| /au/, /ou/       | → | /ai/ |
| /ʏ/, /ɔ/         | → | /ɪ/  |
| /u/, /ju/, /jou/ | → | /i/  |
| /œy/             | → | /ei/ |

As an example, the i-umlaut can occur in the presence of the nominalizer *-i*. Note, however, that it is not phonologically triggered process, as is evidenced by the DAT.SG in the example below, where the i-umlaut does not take place, despite the presence of a suffix realized as *-i*.

|      |    |            |    |                            |    |            |
|------|----|------------|----|----------------------------|----|------------|
| (11) | a. | mað-ur     | b. | menn-i-∅                   | c. | mann-i     |
|      |    | [ma:ðʏr]   |    | [mɛnɪ]                     |    | [manɪ]     |
|      |    | man-NOM.SG |    | man-n <sup>o</sup> -NOM.SG |    | man-DAT.SG |

This is further exemplified by the subjunctive, which is marked by a suffix *-i*. The presence of the subjunctive morpheme, however does not trigger i-umlaut, whereas

a null past tense may trigger umlaut on certain verbs.

- |      |    |                                 |    |                                  |
|------|----|---------------------------------|----|----------------------------------|
| (12) | a. | far-i<br>[fa:ɪ]<br>go-PRES.SUBJ | b. | fær-i<br>[fai:ɪ]<br>go-PAST.SUBJ |
|------|----|---------------------------------|----|----------------------------------|

The i-umlaut also occurs in the dative plural of a certain class of nominal stems, (13), where most stems would undergo u-umlaut, when applicable, (14).

- |      |    |                                      |      |    |                                   |
|------|----|--------------------------------------|------|----|-----------------------------------|
| (13) | a. | faðir-∅<br>[fa:ðɪr]<br>father-NOM.SG | (14) | a. | akur-∅<br>[a:kʏr]<br>field-NOM.SG |
|      | b. | feðr-um<br>[fɛðrʏm]<br>father-DAT.pl |      | b. | ökr-um<br>[œ:kʏm]<br>field-DAT.pl |

Only the syllable that is immediately right-adjacent to the trigger undergoes i-umlaut, even when the less local syllables are potential undergoers.

- |      |    |                                                                     |    |                                                                        |                               |
|------|----|---------------------------------------------------------------------|----|------------------------------------------------------------------------|-------------------------------|
| (15) | a. | á-horf-and-i<br>[auhɔrvandi]<br>on-watch-PART-NOM.SG<br>'spectator' | b. | á-horf-end-ur<br>[auhɔrvendʏr]<br>on-watch-PART-NOM.PL<br>'spectators' |                               |
|      | c. | *áherfend-ur<br>[auhervendʏr]                                       |    | d.                                                                     | *áhyrfend-ur<br>[auhervendʏr] |

Given the linear restrictions on its application, the i-umlaut, unsurprisingly, never crosses between stems in compounds (Indriðason 1994:121; Árnason 2010:260-261).

- |      |    |                                                                                 |    |                                                              |
|------|----|---------------------------------------------------------------------------------|----|--------------------------------------------------------------|
| (16) | a. | móður#bróðir-∅<br>[mou:ðʏrbrouðɪr]<br>mother#brother-NOM.SG<br>'maternal uncle' | b. | móður#bræðr-um<br>[mou:ðʏrbraiðrʏm]<br>mother#brother-DAT.PL |
|      |    |                                                                                 | c. | *mæðr#bræðr-um<br>maiðrbraiðrum                              |

Finally, as mentioned above, i-umlaut only applies to certain morphemes, where other morphemes in the same environment will not undergo umlaut, them containing

a potential undergoer. This is exemplified below by *örn* ‘eagle’, which undergoes i-umlaut in genitive singular, and *barn* ‘child’, which does not.

- |      |                                                         |                                                         |
|------|---------------------------------------------------------|---------------------------------------------------------|
| (17) | a. <i>arn-ar</i><br>[artnar]<br>eagle-GEN.SG<br>‘eagle’ | c. <i>barn-∅</i><br>[bartn]<br>child-NOM.PL<br>‘child’  |
|      | b. <i>ern-i</i><br>[ɛrtɲi]<br>eagle-DAT.SG<br>‘eagle’   | d. <i>barn-i</i><br>[bartɲi]<br>child-DAT.PL<br>‘child’ |

The i-umlaut should hence not be considered an automatic phonological process occurring in particular environments, but as an idiosyncratic property of the undergoer. The i-umlaut hence makes for an appropriate test case for whether morphophonology is subject to the same locality conditions as contextual allomorphy (cf. Marantz 1997, 2007, Embick 2010, Bobaljik 2012, Moskal 2015b,a, Smith et al. 2015).

The u-umlaut differs in that it applies more generally than the i-umlaut, e.g. the u-umlaut applies to loanwords. The u-umlaut could then arguably be considered to be more phonological in nature than the i-umlaut. The two umlauts are still similar in many other respects (e.g. Anderson 1969b,a, 1974, Orešnik 1977, Rögnvaldsson 1981, 2006, Árnason 1985b, Kiparsky 1984). The vowel-changes triggered are the following.

- (18)    a.    /a/ → /œ/
- b.    /a/ → /ʏ/ or /ɔ/

The change in (18a) is often characterized as occurring when the undergoer is stressed and (18b), when the undergoer is unstressed. However, as we’ll see below, that characterization is overly simplified, as (18a) applies, in some cases, to an unstressed

vowel and (18b) sometimes applies to stressed vowels.

First, as with the i-umlaut, there are cases where it appears to be triggered by the presence of /ʏ/ as in the following examples.

- |                                                                                                     |                                                                                             |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| (19) a. blaðr-a<br>[plaðra]<br>baloon-NOM.SG<br><br>b. blöðr-u<br>[plœðry]<br>baloon-ACC/DAT/GEN.SG | (20) a. hamar-∅<br>[ha:mar]<br>hammer-NOM.SG<br><br>b. hömr-um<br>[hœmrym]<br>hammer-DAT.PL |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|

Often, the trigger is non-overt.

- |                                                                                           |                                                                                              |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| (21) a. land-∅<br>[lant]<br>land-NOM/ACC.SG<br><br>b. lönd-∅<br>[lœnt]<br>land-NOM/ACC.PL | (22) a. sak-ar<br>[sɑ:kɑr]<br>blame-GEN.SG<br><br>b. sök-∅<br>[sœ:k]<br>blame-NOM.ACC.DAT.SG |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|

When there is a chain of potential undergoers, the u-umlaut can apply in several ways (Rögnvaldsson 2006).<sup>3</sup> First, if all potential undergoers are targeted, the leftmost vowel undergoes (18a) and others undergo (18b).

- |                                                                                                     |                                                                                                 |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| (23) a. bak-ar-i<br>[pɑ:kɑrɪ]<br>bake-er-NOM.SG<br><br>b. bök-ur-um<br>[pœ:kyrym]<br>bake-er-DAT.PL | (24) a. banan-i<br>[pɑ:nanɪ]<br>banana-NOM.SG<br><br>b. bönun-um<br>[pœ:nynym]<br>banana-DAT.PL |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|

There are also some irregularities in terms of the application of the u-umlaut, namely, it appears possible to only apply (18a), regardless of stress.

<sup>3</sup>Note that there is considerable speaker variation in this respect. All the examples listed here are attested. The *banana* examples were discussed by Rögnvaldsson (2006) and the *baker* examples were collected through google searches.

- |      |    |                                           |      |    |                                         |
|------|----|-------------------------------------------|------|----|-----------------------------------------|
| (25) | a. | bak-ar-i<br>[pa:kari]<br>bake-er-NOM.SG   | (26) | a. | banan-i<br>[pa:nani]<br>banana-NOM.SG   |
|      | b. | bök-ör-um<br>[pœ:kœrym]<br>bake-er-DAT.PL |      | b. | bönön-um<br>[pœ:nœnym]<br>banana-DAT.PL |

In some cases only the adjacent vowel is targeted. In these cases only (18a) applies, regardless of the syllable being unstressed.

- |      |    |                                           |      |    |                                         |
|------|----|-------------------------------------------|------|----|-----------------------------------------|
| (27) | a. | bak-ar-i<br>[pa:kari]<br>bake-er-NOM.SG   | (28) | a. | banan-i<br>[pa:nani]<br>banana-NOM.SG   |
|      | b. | bak-ör-um<br>[pa:kœrym]<br>bake-er-DAT.PL |      | b. | banön-um<br>[pa:nœnym]<br>banana-DAT.PL |

Finally, it also appears that for some speakers, it is possible to apply only (18b) to the unstressed vowel, as discussed by Rögnvaldsson (2006), or not apply the u-umlaut at all (Anderson 1969a:57–58, fn 4). These patterns appear to only be attested for *banani* (for cases of exceptions, see Ingason 2013).<sup>4</sup>

- |      |    |                                       |    |                                         |    |                                         |
|------|----|---------------------------------------|----|-----------------------------------------|----|-----------------------------------------|
| (29) | a. | banan-i<br>[pa:nani]<br>banana-NOM.SG | b. | bak-ur-um<br>[pa:lrym]<br>banana-DAT.PL | c. | banan-um<br>[pa:nanyr]<br>banana-DAT.PL |
|------|----|---------------------------------------|----|-----------------------------------------|----|-----------------------------------------|

In addition to these irregularities, the u-umlaut differs from the more phonological operations discussed at the start of this section in that it does not apply in an underived environment, or in case of an epenthetic /y/.

- |      |    |                                       |    |                                 |
|------|----|---------------------------------------|----|---------------------------------|
| (30) | a. | kaktus-∅<br>[kaxtys]<br>cactus-NOM.SG | b. | dag-ur<br>[taɣyr]<br>day-NOM.SG |
|------|----|---------------------------------------|----|---------------------------------|

---

<sup>4</sup>The lack of u-umlaut on *banani* could also be related to its status as a loanword. Loanwords in Icelandic are known to form pseudocompounds, where the secondary stress is fixed on a particular syllable (e.g. Árnason 2011:273). Complete exceptions from the application of the u-umlaut are, however, vanishingly rare.

Nor does it apply across the definite article, despite the phonological conditions being met (on the surface at least).

- |      |    |                                         |    |                                          |
|------|----|-----------------------------------------|----|------------------------------------------|
| (31) | a. | bar-n-um<br>[bartnym]<br>bar-ART-dat.SG | b. | *bör-n-um<br>[pœrtnym]<br>bar-ART-dat.SG |
|------|----|-----------------------------------------|----|------------------------------------------|

Finally, tying all the operations together, is that the u-umlaut also does not apply between two stems in a compound, even when the non-head contains an adjacent potential undergoer.

- |      |    |                                                                  |    |                                                   |
|------|----|------------------------------------------------------------------|----|---------------------------------------------------|
| (32) | a. | bak#land-∅<br>[ba:klant]<br>back#land-NOM/ACC.SG<br>'hinterland' | b. | bak#lönd-∅<br>[ba:kløent]<br>back#land-NOM/ACC.PL |
|      |    |                                                                  | c. | *böök#lönd<br>[bœ:kløent]                         |

Hence, as pointed out by e.g. Árnason (1985b, 2011), Markússon (2012), Ingason (2013), a purely phonological analysis of the u-umlaut does not appear to be viable (contra e.g. Anderson 1969b,a, 1974, Orešnik 1977, Rögnvaldsson 1981). Any analysis of the u-umlaut must take into consideration the morphosyntactic structure and morphosyntactic features (see e.g. Ingason 2013 for a potential analysis). Hence both umlauts in Icelandic would appear appropriate operations for testing domain effects of morphophonological operations.

## 3.2 The domain of morphophonology

Before moving on, some clarifications are in order. In the literature, there are two notions of *cyclicity*: on the one hand, there is the notion that the derivation proceeds incrementally, morpheme by morpheme, from the root outwards (e.g. Kiparsky 1984, Bobaljik 2000). I refer to this notion as “bottom-up.” On the other hand there is



the notion of the derivation proceeding in certain steps, or “chunks” (e.g. Chomsky 1965, Embick 2010). I’ll refer to this notion as “chunking.” The question is then, what role do these two notions of cyclicity play in morphophonology.

In single stem words, a bottom-up derivation accounts straight forwardly for the simple cases. I assume that Vocabulary Insertion and linearization cooccur (e.g. Embick & Noyer 2001), and that morphological information is not available after Vocabulary Insertion (Bobaljik 2000).<sup>5</sup> This is analogous to the Strict Cycle Condition in Lexical Phonology (see Kiparsky 1984 and references cited therein). Under these assumptions, when a word with the structure  $[ [ [ A ] B ] C ]$ , first A is realized and the morphosyntactic features are replaced by a phonological string. Following that, B is realized and phonological interactions between A and B can take place. Once C is realized, all that is visible is the phonological string that has replaced the morphemes A and B and phonological interactions can take place. Morphologically triggered processes can also be assumed to apply in same manner, albeit prior to the trigger undergoing Vocabulary Insertion. This then predicts that any process that specifically triggers vowel alternations and ignores intervening consonants, should be able to apply accross the entire word, i.e. C should, in principle, be able to trigger a vowel change on A, across B.

This is a desirable effect, however, “bottom-up” alone runs into problems with, e.g., compounds, i.e. if these processes are oblivious to the morphosyntactic structure within the complex head, we would expect these interactions to occur between elements in compounds. As we saw above, that is not the case in Icelandic. Hence “chunking” becomes relevant for morphophonology as well. Now, the question is how to define these “chunks.” In what follows, I propose a contextual definition of the domain of morphophonology. Note, that from here on out, I will be using the

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<sup>5</sup>Bobaljik (1999b) notes however that it is possible for a morpheme to be inwardly sensitive to the features of an adjacent morpheme. See however Bonet & Harbour (2012), i.a., for the argument that features are visible after Vocabulary Insertion.

term *cyclicity* in the “chunking” sense.

### 3.2.1 Dynamic Cyclicity

Drawing on Bobaljik & Wurmbrand (2005, 2013), Bošković (2005, 2013, 2014) and Wurmbrand (2013, 2014a,b, 2017) and Wurmbrand & Haddad (2016) i.a., I propose that the domain for morphophonology is marked by the highest projection in the extended projection of the root in a complex head, where the definition of an extended projection adopted here is a modified version of Grimshaw (2000). I refer to this as Dynamic Cyclicity. The definitions are as follows.

- (33) *Domain for morphophonological interactions*  
 A domain for morphophonology is marked by the highest projection in the extended projection of the root.
- (i) Morphophonological rules can apply to the exponents of two nodes, X and y, if X and Y are within the same extended projection.
  - (ii) Morphophonological rules do not apply between two extended projections.
- (34) *Extended projection within a complex head*  
 $\alpha$  is in the extended projection of a root R it:
- (i) the head of  $\alpha$  morphologically selects/subcategorizes R, or
  - (ii) the head of  $\alpha$  morphologically selects/subcategorizes  $\beta$ , where  $\beta$  is a head in the extended projection of R.

Under (33)–(34), the effects of (2) follow. By limiting the application of morphophonological processes to the extended projection of the root, we can effectively derive the lack of morphophonological processes between  $N_1$  and  $N_2$  in (1a), but still allow for those processes to apply between  $N_1$  and  $\varphi_1$ . It is worth noting at this point that under (33)–(34), morphophonological interaction between the two roots in a root-root compound is not blocked as a bare root has no extended projection and is not predicted to form a domain for morphophonological interactions. I will discuss this further below (see also Moskal 2015a).

I assume a difference between a morpheme’s subcategorization of its complement and the selection of arguments in the vein of Chomsky (1965), where subcategorization only pertains to head-complement relation but selection also pertains to the selection of subjects. This could alternatively be formulated in terms of C-selection and S-selection (see e.g. discussion in Pesetsky 1995), where morphological selection involves C-selection alone but the selection of arguments involves both C-selection and S-selection.<sup>6</sup> By specifying morphological selection in (33) we exclude *truck* in *truck driver* from the extended projection of the root *drive*, since *truck* is syntactically/semantically selected as an argument by the verb *drive*, but crucially not morphologically selected. Morphologically, the stem *driver* does not select a complement, hence *truck* will not be treated as a part of the extended projection of *drive*. This can be illustrated in the derivation of the compound *nemendahúsleigna* (‘student’s rent.GEN.PL’).

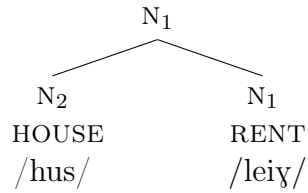
- (35)    nemend-a#hús#leig-na  
           [nɛməntahusleikna]  
           student-GEN.PL#house#rent-GEN.PL  
           ‘rent for students’

Assuming that the derivation proceeds from the bottom up, we start by merging the two stems, HOUSE and RENT. Note that the inclusion of phonological representation in the structures in what follows is only for expository purposes. The structures themselves contain no phonological information.

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<sup>6</sup>One might alternatively follow Wurmbrand (2014b), and define the difference in terms of feature valuation, but I set aside for now how such an approach might be formalized.

(36)



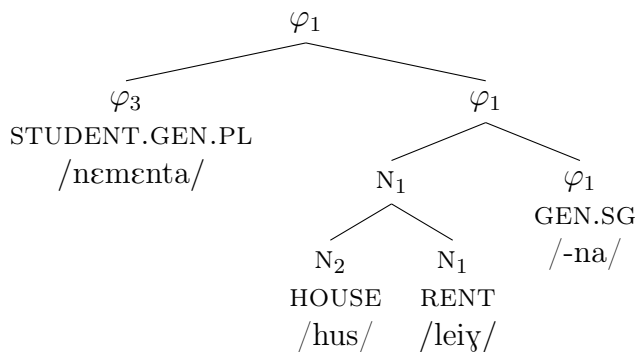
At this point, there is nothing in the structure to determine whether we have reached the top of the extended projection of the head of the compound, *rent*. As for the modifier, *house*, it is adjoined to  $N_1$ ; it is not morphologically selected by  $N_1$  (or any of the heads potentially contained therein), hence the point of adjunction marks the end of the extended domain of the root  $\sqrt{\text{HOUSE}}$ , closing off that domain. This eventually blocks the application of, for example *t*-insertion between */hus/* and */leiɻ/* which otherwise occurs at morphological juncture (see e.g. Árnason 2011:260) as in the example below.

(37)    */kri:s/*    +    */liŋk/-*    →    *[kristliŋk]*  
           ‘pig’                    DIM                    ‘piglet’

Postulating that the rule respects the morphophonological boundary correctly yields *[husleiɻ]* and not *\*[hustleiɻ]*. The morphophonological domain for *RENT* has not been established at this point.

Moving up the structure, the head stem is combined with  $\varphi$ , which morphologically selected  $N$  as its complement and hence a part of the extended projection of *RENT*. As argued above, this is also the site of adjunction for  $\text{MOD}_{infl}$ . A simplified structure is provided below.

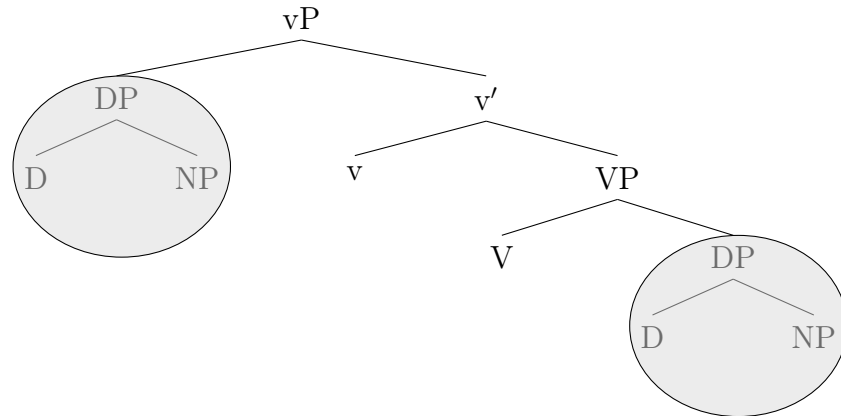
(38)



Just as we saw with house above, student is adjoined to the head, in this case at  $\varphi_1$ . It is not morphologically selected by  $\varphi_1$  and hence the point of adjunction marks the end of the extended projection of STUDENT, making the exponents of the morphemes contained therein inaccessible for morphophonological processes triggered by material outside  $\varphi_3$ . For the head of the compound, its extended domain ultimately contains the modifiers, however, these have already formed domains by themselves. This allows for occlusion, in this case  $/ɣ/ \rightarrow [k] / \_ /n/$  (see Árnason 2011:260), to apply between  $/leiɣ/$  and  $/na/$ , yielding  $[leikna]$ .

Under this approach, it becomes possible for non-constituents to belong to the same morphophonological domain and exclude other elements within that same constituent, although referring to this as a non-constituent domain is somewhat misleading. The domain in question,  $\varphi$ , simply contains multiple smaller domains. This is entirely analogous to phases/cycles in the syntax, where the active portions of any non-initial phase is a non-constituent (see e.g. Chomsky 2000, 2001 and many many others). As in the standardly assumed vP structure where vP is a phase that contains two smaller phasal domains, that of the argument DPs.

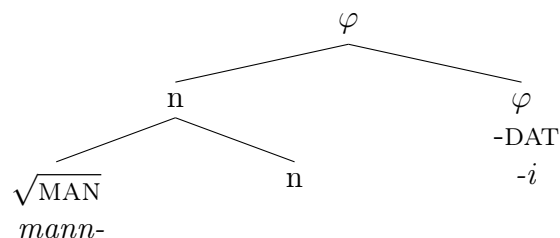
(39)



This approach also allows phonology to apply to a linear string, but at the same time gives the effects of phonology being sensitive to morphosyntactic structure, essentially deriving the effect of cyclicity in phonology (cf. Chomsky & Halle 1968, Kiparsky 1984 i.a.), without having to posit any boundaries specific to the phonology. To bring this back to the example used for illustration, this allows for occlusion to apply between /leiɣ/ and /na/, but still preventing application of t-insertion between /hus/ and /leiɣ/. The resulting form of /nɛmɛnda/ + /hus/ + /leiɣ/ + /na/ is then [nɛmɛndahusleikna].

It is widely assumed in the literature on DM, that roots are acategorical and unspecified for any features generally associated with different categories (e.g. gender, number, person, etc.) (cf. Marantz 1997, 2007; Harley 2005, 2009; Embick 2010 i.a.). As I stated in chapter 2, I adopt this assumption here, i.e., roots must merge with a category node in order to receive their category status. To reiterate, under that assumption, the structure given for *mann-i* ‘man-dat’ given in (65a) in chapter 2, repeated below, where the stem *mann-* has been decomposed into a root and a n° node.

- (40) a. mann-i  
       *man*-DAT.SG  
       ‘man’  
       b.



There are two immediate consequences that arise from this assumption: i) the structure offers additional attachment sites below the inflectional level, i.e.  $\sqrt{\text{ROOT}}$ – $\sqrt{\text{ROOT}}$  and  $n$ – $n$ , and ii) a modifier attached to the root should potentially undergo morphophonological interactions with the head of the compound, since the modifier lacks functional structure, it does not form a domain under (33) and (34).<sup>7</sup> Furthermore, it raises the question of whether there is cross-linguistic variation in potential attachment sites. Note, however, that the hypotheses raised in the remainder of this section are based on preliminary observations and are intended to serve as a guideline for a full fledged analysis developed in future research.

As far as Icelandic is concerned, morphophonological processes that apply between stems (i.e. categorized roots) and affixes generally do not apply between two stems in compounds. There are, however, a few exceptions, such as the adjective *vitlaus* [vihtlœys] ‘stupid/ wrong’ (lit. ‘senseless’), where /l/ in *laus* triggers preaspiration of the preceding /t/ between the modifier and the head. Indriðason (1994:63) also mentions the noun *fiskeldi* [fiscelti] ‘fish farming’, where /ε/ triggers palatalization on the preceding /k/ between the modifier and the head. Such ex-

<sup>7</sup>This is in principle, compatible with, e.g. Lowenstamm (2010), who argues that derivational affixes are roots rather than affixes. That, would however mean that, under the matching condition, the roots argued to be merged above  $n^\circ$  are expected to be stems. Any interactions between the non-head element and the head, could be explained as compound specific phonological process. Such processes are attested in, e.g. Marathi, (cf. Vogel 2010:147–148 and references cited therein). That does however, contradict e.g. De Belder & van Craenenbroeck (2015), who predict root–root compounding to be impossible.

amples are exceptional, since the same processes do not necessarily apply across boundaries involving the same heads, e.g. *baklaus* [pa:kloɛys]. Hence it would seem that, although a handful of candidates exist, Icelandic generally resists root compounding. Other languages may freely allow root compounding, such as Ojibwe, where morphophonological processes that apply between a stem and an affix, also apply between a modifier and the head in compounding (Pigott & Travis 2012). This is exemplified below where the compound verb /gi:wa:daga:/ ‘swim home’ is compared to /name:g/ ‘sturgeons’ and /nigi:a:gamose:/ ‘I walked in snowshoes’.

- (41) a. /gi:wa:daga:/  
           /gi:we:/-/a:daga:/  
           GO.HOME-SWIM  
           ‘swim home’
- b. /name:g/  
       /name:/-/ag/  
       STURGEON-PL  
       ‘sturgeons’
- c. /nigi:a:gamose:/  
       /ni/-/gi:/-/a:gam/-/ose:/  
       1-PAST-SNOWSHOE-WALK  
       ‘I walked in snowshoes’

[Adapted from Pigott & Travis 2012:161]

In both (41a) and (41b), vowel deletion occurs at the boundaries of the two morphemes, i.e. the two roots in (41a) and the noun and the plural suffix in (41b). (39) shows that vowel hiatus is possible in certain cases at the juncture of two morphemes, as can be seen from the interaction between PAST and SNOWSHOE.WALK.

Root versus stem compounding could potentially be the reason behind the varying stress pattern observed with ice cream, i.e. [‘aijskrijm] and [‘aijs’krijm] (cf. Bloomfield 1933:180 and many others), where the former may be an instance of root compounding and the latter a case of stem compounding.<sup>8</sup>

Cross-linguistic variation in availability of adjunction sites could explain both the

<sup>8</sup>See however Jackson & Punske (2013) and Punske (2016) for an alternative analysis where only the former are analysed as compounds (derived through incorporation) and the latter are not compounds.



lack of availability of root compounding in Icelandic as well as the lack of availability of  $\text{MOD}_{infl}$  in e.g. English, which appears to be entirely analogous to the availability of root compounding in English. English generally resists  $\text{MOD}_{infl}$  with a few exceptions, such as *arms dealer* (see e.g. Warren 1978).

### 3.2.2 Dynamic Cyclicity in single-stem words

Before moving on to further extensions, it would be useful to explore whether Dynamic Cyclicity can be observed in single stem words and compare that to another domain phenomenon found in morphology, i.e. contextual allomorphy.

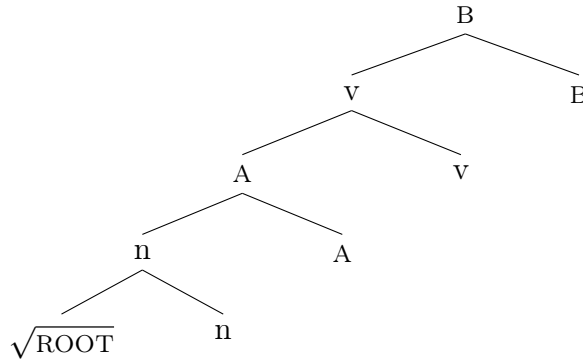
As previously mentioned, in DM, syntax arranges abstract morphemes into a hierarchical structure. Phonological realizations of these morphemes, or Vocabulary Items (VIs) are then inserted post-syntactically. Contextual allomorphy refers to a situation where a particular morpheme is realized with different VI depending on its morphosyntactic context. Examples of this would be the root  $\sqrt{\text{GO}}$ , which in the context of [PAST] is realized as /wɛn/, but otherwise it is realized as /gou/. Another example would be the English plural which is realized as /m/ in the context of e.g.  $\sqrt{\text{OX}}$ ,  $\emptyset$  in the context of e.g.  $\sqrt{\text{SHEEP}}$ , and /z/ elsewhere.

Contextual allomorphy is subject to strict locality constraints, as has been discussed extensively by e.g. Embick (2010), Bobaljik (2012) and Moskal (2015b). The approach taken in these works is a cyclic approach, i.e. that the processes in question are confined within a particular domain analogous to cycles/phases/‘chunks’ in syntax (Chomsky 2000, 2001). The cycle is defined by category nodes (Marantz 2001, 2007). Under Embick (2010), contextual allomorphy is subject to two conditions: the two morphemes must be within the same cycle and they must be linearly adjacent, i.e. not separated by an overt morpheme.

Under Embick (2010) a cyclic domain is closed off by the merger of a second cyclic node. Hence in a structure such as the following, where  $v^\circ$  and  $n^\circ$  are cyclic

nodes, the root can be subject to contextual allomorphy based on  $n^\circ$  and A. The merger of  $v^\circ$  into the structure closes off the domain of  $n^\circ$ , which contains only the root, and hence the root cannot be subject to contextual allomorphy based on  $v$  or B.

(42)



The locality constraints on contextual allomorphy argued for by Embick (2010) have received considerable support from various cross-linguistic studies as mentioned above and this study provides no evidence to counter his claim (see however Moskal 2015 for some counterevidence to Embick’s locality domains). The question is whether morphophonological processes should be subject to the same locality constraints as contextual allomorphy. Embick (2010:47) argues that it is so. However, under such locality constraints, the structure proposed above becomes highly problematic, i.e. under the assumed compound structure, morphophonological interactions would be predicted to be possible between two elements in a compound. Hence, it is worthwhile to see whether there are cases of morphophonological processes in single stem words that do not obey the locality constraints proposed for contextual allomorphy. In what follows I argue that umlauts provide such evidence.

If morphophonology is subject to the same locality constraints as contextual allomorphy, it is not expected that any morphophonological processes affect the root in, e.g. derived nominals. That prediction is countered by umlauts in Icelandic. Note

also that this necessitates separating the domains of morphophonology or readjustment rules distinct from contextual allomorphy (contra e.g. Bermúdez-Otero 2013). As discussed below, these processes can neither be said to be purely phonological nor do they obey the locality restrictions observed with contextual allomorphy.

As mentioned above, the i-umlaut is a morphophonological process in which a morpheme triggers a vowel alternation in the left adjacent vowel.

(43) Vowel alternation in i-umlaut (adapted from Árnason 2011:240)

$/a/, /ɔ/, /œ/ \rightarrow /ɛ/$

$/au/, /ou/ \rightarrow /ai/$

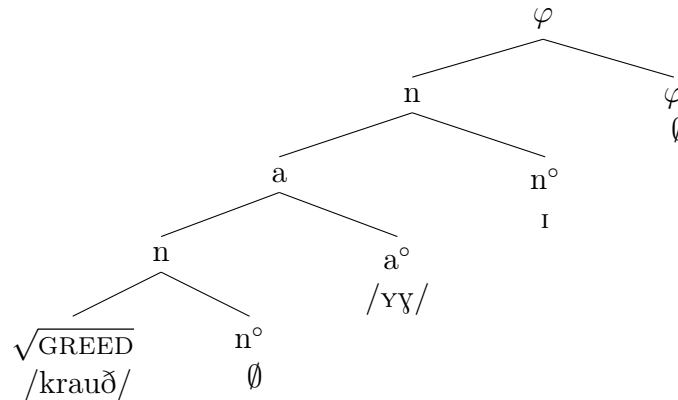
$/ʏ/, /ɔ/ \rightarrow /ɪ/$

$/u/, /ju/, /jou/ \rightarrow /i/$

$/œy/ \rightarrow /ei/$

Uncontroversially, these alternations are not considered to be triggered by phonological material (Árnason 2011:239-243). This can be illustrated by the subjunctive forms of the verb *súp-* ‘sip’. In the present tense the subjunctive form is *súpi* [su:pi] whereas the past form is *sypi* [sɪ:pi]. The phonological environment is the same in both the past and present forms; they differ only in terms of tense. The i-umlaut can then be said to be triggered by morphosyntactic features. Now consider *græðgi* which is derived from the adjective *gráðug-*. The decomposition and structure is provided below.

- (44) a. græð-g-i- $\emptyset$   
           /krauð/-  $\emptyset$ - /YŸ/- /I/-  $\emptyset$   
           greed-    n- a-       n-   NOM  
           [kraiðkɪ]  
           ‘greed/greediness’  
       b.



The higher *n* triggers syncope on the realization of *a*, deleting the vowel. This makes the root vowel and *n* adjacent on the vocalic tier, allowing application of i-umlaut on the root. Under Embick’s approach the root  $\sqrt{\text{GREED}}$  should not be accessible to the higher *n* for any morphophonological interactions. The higher *n* nonetheless triggers i-umlaut across two category nodes, one of which is overt.<sup>9</sup> If morphophonology is subject to the same locality constraints as contextual allomorphy this interaction is predicted to be impossible. Under Dynamic Cyclicity, however, the entire structure is predicted to form a single morphophonological domain. The application of i-umlaut in single stem words, hence lends support to the separation of morphophonological domains and the domains of contextual allomorphy.<sup>10</sup>

There is no evidence of an independent *-gi* nominalizer outside of this context.

<sup>9</sup>Note that under Embick the presence or absence of the lower null *n* is not relevant.

<sup>10</sup>Another option would be that the facts point towards a different locality constraints for both morphophonology and contextual allomorphy and thus preserving a unified locality domain for both operations. Given that morphophonological operations are known to ignore intervening material (e.g. Embick 2010:98–101), that would mean that the domain for contextual allomorphy would be the entire extended projection of the root beyond what is assumed under most current proposals (Bobaljik 2000, Embick 2010, Moskal 2015b, Smith et al. 2015). At this point I do not have evidence for extending the domain for contextual allomorphy and will hence leave this issue for further study.

Note that the syncope observed on /yɣ/ is not phonologically motivated as is evidenced by a corresponding adjectival form, *gráð-ug-i*, where the DAT.SG.MASC.STR affix *-i* does not trigger syncope. Furthermore, this pattern also extends to other derivations involving different exponent of  $a^\circ$ , such as *-ul-*.<sup>11</sup>

- |      |    |                                                                                                  |    |                                                                                                                        |    |                                                                                                                                  |
|------|----|--------------------------------------------------------------------------------------------------|----|------------------------------------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------------------------------------------|
| (45) | a. | athug- $\emptyset$ -<br>/athɣɣ/- $\emptyset$<br>check- $v^\circ$ -<br>[atɣɣ]<br>‘look into sth.’ | b. | athug- $\emptyset$ -ul-<br>/athɣɣ/- $\emptyset$ -/ɣl/<br>check- $v^\circ$ - $a^\circ$<br>[atɣɣɣl]<br>‘detail oriented’ | c. | athyg- $\emptyset$ -l-i<br>/athɣɣ/- $\emptyset$ -/ɣl/-/l/<br>check- $v^\circ$ - $a^\circ$ - $n^\circ$<br>[atɪklɪ]<br>‘attention’ |
|------|----|--------------------------------------------------------------------------------------------------|----|------------------------------------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------------------------------------------|

Hence, it appears that the domain of morphophonology is larger than the domain that has been argued for contextual allomorphy. We saw above that these processes cannot be considered pure phonological processes, but must make reference to both morphosyntactic features and morphosyntactic structure. Just as we saw with the compounds above, morphophonology seems to pick out the entire extended projection of the root.

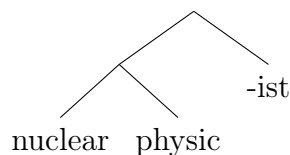
### 3.3 Solving the bracketing paradox

An interesting consequence of this theory is that various mechanisms that have been proposed for bracketing paradoxes, such as manipulating the structure at LF (Pesetsky 1985), backformations (Sproat 1985) autosegmental morphology (Falk 1991) and late insertion of adjuncts (Newell 2005, 2008), become redundant. For the sake of space, I will not discuss all previous approaches, however, given certain similarities between Newell’s (2005, 2008) approach and the one developed here, it is worth while to discuss her approach in more detail.

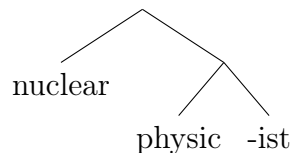
<sup>11</sup>It should be noted that not all derived adjectives with *-ul-* or *-ug-* have an attested nominalized counterpart with *-i*. However, these may not be as exceptional as they seem at first. For instance, I found, e.g. no examples of the noun *fjörgi* ‘liveliness’ from before the 20th century, and although unattested, forms such as *spyrli* ‘inquisitiveness’ from *spurul-* ‘inquisitive’ or *sverli* ‘contentiousness’ from *svörul-* ‘contentious’ seem well formed still.

In syntax there have been proposals that adjuncts need not obey the cycle (Lebaux 1988, Chomsky 1995b, Stepanov 2001), i.e. adjuncts need not be attached at the root of the tree (not root in the morphological sense as above). Hence adjuncts are inserted into the structure at a later point during the derivation. Newell (2005, 2008) extends a proposal by Nissenbaum (2000), that certain morphemes can be late adjoined, analogous to adjuncts in syntax. This can be illustrated using the classical bracketing paradox *nuclear physicist*. The structure indicated by semantics is provided in (46a), and the structure indicated by phonology is provided in (46b).

- (46) a.

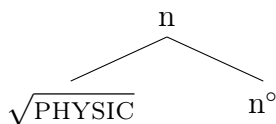


- b.



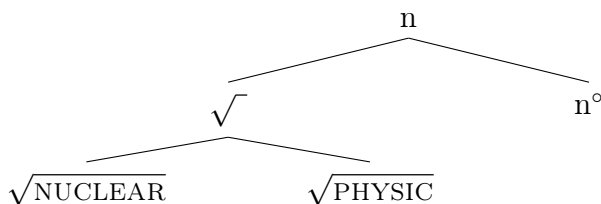
Under Newell’s account, this problem is solved by late adjunction of nuclear. The derivation proceeds along the following lines. During the first phase/cycle, the root  $\sqrt{\text{PHYSIC}}$  is merged with n, eventually forming a complex head as in (47).

- (47)



Upon completion, this structure is spelled out, i.e. undergoes post-syntactic processing at the interfaces. During the next phase, the root  $\sqrt{\text{NUCLEAR}}$  is adjoined countercyclically to  $\sqrt{\text{PHYSIC}}$ , yielding the semantically motivated structure in (46a), repeated below as (48) (reanalysis of  $\sqrt{\text{NUCLEAR}}$  follows below).

- (48)

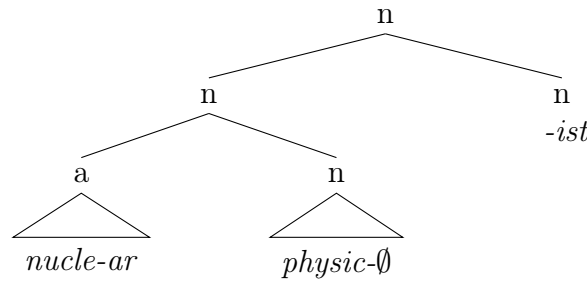


However, since  $\sqrt{\text{NUCLEAR}}$  was not adjoined in the cycle  $\sqrt{\text{PHYSIC}}$  and  $n$  were spelled out, there will be no morphophonological interactions between the two.  $\sqrt{\text{PHYSIC}}$  and  $n$ , having been spelled out in the same cycle, on the other hand can undergo various interactions, hence giving the illusion of the configuration in (46b).

An obvious benefit to Newell's approach is that it replaces the various mechanisms previously proposed, such as manipulation of the structure or autosegmental morphology, mentioned above. The end-result is a single structure whose derivation yields the effects of having two different structures.

The same can be said of the approach developed in this chapter, i.e. that the illusion of two distinct structures can result from processing of a single structure. Under Dynamic Cyclicity, however, it is possible to account for these paradoxes without the additional mechanism of late adjunction, unifying the account of bracketing paradoxes with that of the domain of morphophonology. This can be illustrated by reanalyzing (48). First, under (33) and (34), it is expected that *nuclear physicist* involves stem compounding, rather than root compounding. This can be substantiated by i) *-ar* in *nuclear* can be considered to be an adjectival suffix, cf. *spectacle spectacul-ar* and ii) the meaning of *nuclear physicist* is a person practicing nuclear physics, hence the element *physicist* contains the meaning of the word *physics* as opposed to other meanings available for the root  $\sqrt{\text{PHYSIC}}$ , e.g. in the word *physical*. Under the approach developed here the structure is then be along the lines of the following.

(49)



Just as was illustrated with the Icelandic compounds above, the point at which nuclear is adjoined to the stem *physic* marks the end of the extended projection of the root  $\sqrt{\text{NUCLEAR}}$ . Hence the stem nuclear forms a domain to the exclusion of the rest of the structure. The extended projection of  $\sqrt{\text{PHYSIC}}$  extends beyond the initial null *n*, to include the higher *n*, realized as *-ist* (and ultimately  $\varphi$ ), resulting in *physis* and *-ist* being contained within the same readjustment domain.<sup>12</sup>

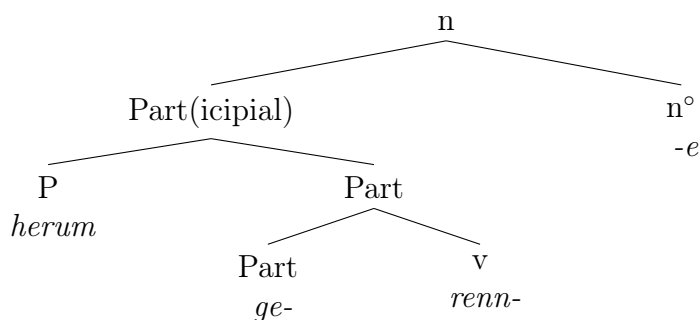
The theory developed here also extends to the Germanic particle verb constructions. One example discussed by Müller (2003) is that of *ge-* *-e* nominalizations such as *Herumgerenne*, meaning ‘the act of repeated aimless running’. Morphophonologically, the particle *herum* is excluded from the rest of the nominalization, implying the structure in (50a). Semantically on the other hand, the structure implied by morphophonology would not yield the appropriate meaning. Under the structure in (50a) the meaning would be ‘aimless acts of repeated running’. The structure in (50b), where the particle *herum* and the verbal stem *renn-* form a constituent to the exclusion of the circumfix *ge-* *-e*, yields the correct meaning.

<sup>12</sup>It should of course be noted that a plausible alternative to the account sketched here is that rather than a bracketing paradox, *nuclear physicist* could be a case of subsecutive modification (cf. Siegel 1980, Spencer 1988), where *nuclear* narrows the set of physicists to a subset thereof. Even if that is the case, however, the remainder of this subsection will be unaffected.





(51)



However, the participle of *rennen* is *gerannt*, hence the nominalization appears to block umlaut. This can be taken as argument in favor of the circumfixal approach discussed above.

### 3.3.1 Clitics and affixes

Another possible extension of this theory is the clitic–affix distinction. Various asymmetries have been noted with regards to the behavior of affixes and clitics (see e.g. Zwicky 1977, Zwicky & Pullum 1983).

It is also possible that Dynamic Cyclicity could derive the clitic - affix distinction. This can be illustrated with the case of hollow roots in Cairene Arabic (Kenstowicz & Kisserberth 1979:415–418 henceforth K&K).<sup>14</sup> Hollow roots are roots with the underlying form /CayaC/ or /Cawa/ that receive different forms in the perfect depending on the immediate suffix: /CiC/ or /CuC/, respectively, before a consonant initial suffix and /CaaC/ otherwise. This is illustrated in the following table.

<sup>14</sup>Thanks to Andrea Calabrese for bringing these to my attention.

- (52) Subject agreement in Cairene Arabic (adapted from K&K 1979:415-416)

| SUBJ     |        | /ʃayal/ ‘carry’ | /ʃawaf/ ‘see’ |
|----------|--------|-----------------|---------------|
| SINGULAR | 1      | ʃil-t           | ʃuf-t         |
|          | 2      | ʃil-ti          | ʃuf-ti        |
|          | 3.MASC | ʃaal            | ʃaaf          |
|          | 3.FEM  | ʃaal-it         | ʃaaf-it       |
| PLURAL   | 1      | ʃil-na          | ʃuf-na        |
|          | 2      | ʃil-tu          | ʃuf-tu        |
|          | 3      | ʃaal-u          | ʃaaf-u        |

That is not the case with object agreement, where the form of the suffix does not affect the form of the root.

- (53) Object agreement in Cairene Arabic (adapted from K&K 1979:416)

| OBJ      |        | /ʃayal/ ‘carry’ | /ʃawaf/ ‘see’ |
|----------|--------|-----------------|---------------|
| SINGULAR | 1      | ʃaal-ni         | ʃaaf-ni       |
|          | 2.MASC | ʃaal-ak         | ʃaaf-ak       |
|          | 2.FEM  | ʃaal-ik         | ʃaaf-ik       |
|          | 3.MASC | ʃaal-u          | ʃaaf-u        |
|          | 3.FEM  | ʃaal-ha         | ʃaaf-ha       |
| PLURAL   | 1      | ʃil-na          | ʃuf-na        |
|          | 2      | ʃil-kum         | ʃuf-kum       |
|          | 3      | ʃaal-hum        | ʃaaf-hum      |

Based on the difference in behavior K&K conclude that the two markers have different sources, one from agreement, the subject, and the other through cliticization of an object pronoun. If that is the case, the pattern in tables 2 and 3 follows. The object marker is not a part of the extended projection of the verbal roots hence it is not within the same readjustment domain as the root. The subject marker on the

other hand is situated within the same readjustment domain as the root hence the contrast between (52) and (53).

Note that the approach argued for here does not necessarily limit the extent to which a clitic can interact with its host with respect to contextual allomorphy. Depending on the theory of the locality of contextual allomorphy assumed, a clitic should be able to freely interact with its host as long as its attachment occurs prior to vocabulary insertion.

To sum up, in this section, I have argued that the theory of Dynamic Cyclicity can be extended to various cases of bracketing paradoxes and the clitic/affix distinction. The effects follow from the defining morphophonological domains by the extended projection of the root.

### 3.4 Semantic boundaries

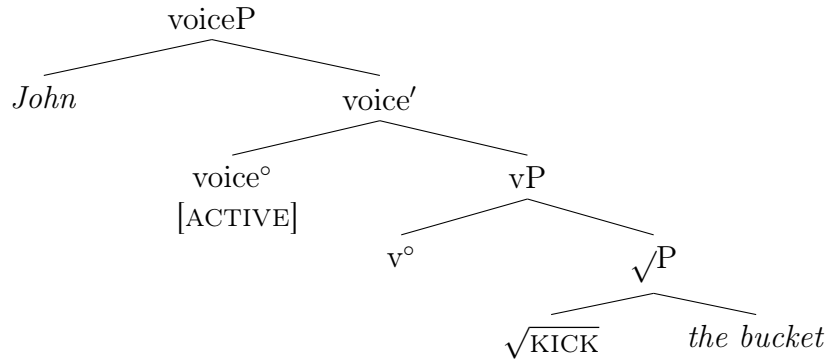
So far the focus has been on boundaries at the syntax–phonology interface, however, it does appear that boundary effects are observed on the semantic side as well.

In general, boundary effects have also been found at the syntax–semantics interface where different points in the structure form boundaries for different types of idiosyncratic meaning. Marantz (1997) proposed that the boundary for idiomatic (i.e. non-compositional) reading in the verbal domain was the node projecting the external argument, which is generally taken to be *voice* (see Kratzer 1996, Pytkäinen 2008). The constituent includes *voice* and its complement, but crucially, not the external argument. This is illustrated below with the idiom *kick the bucket*, where the subject John is merged outside the domain for idiomaticity.<sup>15</sup>

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<sup>15</sup>See, however, Bruening (2016) for an alternative view.

- (54) a. John kicked the bucket.  
b.



Marantz (2013) further proposes a second boundary for idiosyncratic meaning, i.e. contextual allosemy, which is marked by category nodes. Marantz (2013:104) illustrates this using the root  $\sqrt{\text{GLOBE}}$ . In the context of *n*, this root can have either the meaning ‘sphere/sphere-like object’ or ‘the world’. The addition of an *a* to the structure, yielding *glob-al*, disambiguates the root, allowing only for the world meaning. Once *a* has been added to the structure, the choice of meaning is fixed and cannot be undone by further derivation. Hence even with the addition of *v* to the structure, yielding *glob-al-ize*, the root  $\sqrt{\text{GLOBE}}$  can only have the *world* meaning. Unlike idioms, the meaning of the word *globalize* is still compositional.

I take exocentric compounds to be a case of idiosyncratic meaning, i.e. compounds where none of the roots represents the referent of the compound. Under the structure assumed in this chapter, the question arises, whether different types of idiosyncrasy, i.e. compositional and non-compositional, are observable at different levels of modification. The answer appears to be—yes. Compositional idiosyncratic meaning appears to be restricted to the stem level (analogous to Marantz’s contextual allosemy) whereas non-compositional idiosyncratic meaning is not.

First, exocentric compounds with non-compositional meaning are found with modification at both stem and inflectional level. Examples of each are provided in (55) and (56) respectively.

- (55) a. lauf#ryk#suga  
leaf#dust#suck  
‘a device to suck up leaves’
- b. rass#gat  
ass#hole  
‘someone who is adorable’
- c. merk-i#kertí  
remark-L#candle  
‘a snob’
- d. kald#rifjaður  
cold#ribbed  
‘ruthless’

The compound *ryksuga* means ‘vacuum cleaner’ literally means ‘dust sucker’, however in the context of (55a) does not necessarily have the literal meaning of ‘something that sucks the dust of leaves’ or ‘vacuum cleaner made from leaves’ (although these meanings are of course possible), but it has the meaning of ‘a device to suck things up’, specifically leaves in this case. The meaning of (55b) does not seem make reference to anything that could be said to be a combinations of its parts.

- (56) a. tík-ar#spenar  
bitch-GEN#teats  
‘pigtails’
- b. gæs-a#lappir  
geese-GEN#legs  
‘quotation marks’
- c. hníf-a#pör  
knife-GEN#pair.PL  
‘cutlery’
- d. drull-u#sökk-ur  
mud-GEN#sock-NOM  
‘plunger’

Just as with (55) above, none of these compounds have a meaning that is composed of the meaning of their parts. (56a) does not refer to the mammary glands of a female dog, but hair pulled together at each side of a person’s head. Likewise (56b) does not refer to legs of a goose, but to a set of typographical symbols. (56c) includes forks and spoons and more than two members and (56d) is not worn on one’s feet.

As far as I have found, exocentric compounds with compositional meaning, i.e. meaning that is composed of its parts, are only found in stem compounds. Furthermore, they appear to be exclusively bahuvrīhi compounds, i.e. referring to an individual that possesses the properties in question. These compounds differ from the ones listed above in (56) in that, although neither of the two elements form a “semantic head” of the compound, meaning of the compounds is still interpretable

from the meaning of the its parts, i.e. they denote some kind of property of the referent. Examples are provided below.<sup>16</sup>

- |      |    |                                                               |    |                                            |
|------|----|---------------------------------------------------------------|----|--------------------------------------------|
| (57) | a. | grá#skeggur<br>grey#beard<br>‘one having a grey beard’        | c. | ein#hyrn-ingur<br>one#horn-er<br>‘unicorn’ |
|      | b. | tólf#fótungur<br>twelve#foot<br>‘caterpillar (lit. one having | d. | létt#feti<br>light#foot<br>‘light-foot’    |

A *gráskeggur* has a grey beard, a *tólfþótungur* has twelve legs<sup>17</sup>, *einhyrningur* has a single horn and *léttfeti* is light on his feet.

Exocentricity, when taken to be a case of idiosyncratic meaning, patterns with the types of idiosyncrasy discussed by Marantz (1997, 2013), where the domain of compositional idiosyncratic meaning is marked by the stem level, whereas the domain for non-compositional meaning is larger.

## 3.5 Summary

To sum up this chapter, We have observed that elements within the compound form multiple morphophonological domains, namely that modifiers form separate domains to the exclusion of the head. This results in a bracketing paradox when considering the structure proposed in chapter 2. A solution to this paradox was proposed where the morphophonological domains were defined contextually by the

<sup>16</sup>(57a) can be identified as a stem compound given the lack of interaction between the two stems. If this were a root compound one might expect e.g. resyllabification to occur between the two stems yielding /kraus.kək:yr/ [krausəkəkç], cf. *marokkó-sk-ur* (‘Moroccan’) which is syllabified /ma.rɔ.hkous.kyr/. That is not the case with (57a) which is syllabified as /krau.skək:yr/ [krau:skəkç]. Determining whether (57b) is a stem or a root compound is less straight forward, however that is not crucial to the analysis here. It appears that the outer limits of the domain of compositional exocentric meaning of compounds is determined at the stem level. This also allows for such meaning to be determined at the root level.

<sup>17</sup>It should be noted that this term could very well be a result of a confusion with larvae of certain other species of insects which can have up to 6 pairs of pro-legs whereas caterpillars have only up to 5 pairs.

extended projection of the root. This yields the effects of a bracketing paradox where the larger domain of the head happens to contain smaller domains of the modifiers.

This approach was extended to classical bracketing paradoxes and Germanic particle verb constructions, replacing older proposals involving structure manipulation. The structure is interpreted at the interfaces under the conditions in (33) and (34), yielding the effects of two different structures, hence resulting in any structure manipulation being unnecessary. This approach was also shown to potentially derive the clitic/affix distinction.

Finally, I also showed that domains of meaning are observed in compounds as well. Specifically, taking exocentricity as a case of idiosyncratic meaning, exocentric compounds with compositional meaning are only possible at the stem level. Exocentric compounds with non-compositional meaning, however, are found at either inflectional or stem level.



# Chapter 4

## The Icelandic Noun Phrase

In this chapter I explore the Icelandic traditional noun phrase (TNP), its structure and structural relations between the various elements therein.

The North Germanic noun phrase and definiteness marking therein has received a considerable amount of attention (see e.g. Delsing 1993b, Vangsnes 1999, Embick & Noyer 2001, Hankamer & Mikkelsen 2002, 2005, 2008, Julien 2002, 2003, 2005, Katzir 2011, Schoorlemmer 2012, Norris et al. 2014) where the debate has typically been centered around the basic structure of the noun phrase and how to derive the definiteness marking.

The basic pattern of variation observed across the North Germanic languages is exemplified by Danish, Icelandic and Faroese in the following examples.<sup>1</sup> For Danish, the article appears postnominally in the absence of pronominal modifiers, whereas the presence of, e.g. an adjective the article appears pronominally. In Icelandic, by contrast, the article can appear postnominally in the presence of pronominal modifiers. In the case of Faroese, the article is realized both pre- and postnominally in the presence of pronominal modifiers.

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<sup>1</sup>Note that this is a simplification of the state of affairs as is clear from the literature and will be reflected in the discussion below.

## (1) Danish

a. hest-en  
*horse-the*  
‘the horse’

b. den røde hest  
*the red horse*  
‘the red horse’

[Hankamer & Mikkelsen 2002:137]

## (2) Icelandic

a. hestur-inn  
*horse-the*  
‘the horse’

b. gamli hestur-inn  
*old horse-the*  
‘the old horse’

## (3) Faroese

a. kettlingur-in  
*kitten-the*  
the kitten

b. tann svartí kettlingur-in  
*the black kitten-the*  
the black kitten [Julien 2005:27]

Various accounts have been proposed to account for the pattern observed; the families of approaches (often targeting different subsets of the languages in question) include: raising of either a head (e.g. Delsing 1993a, Sigurðsson 1993, Embick & Noyer 2001 i.a.) or a phrase (e.g. Vangsnes 1999, Julien 2005, Schoorlemmer 2012, Pfaff 2015, Ingason 2016 i.a.), post-syntactic operations, such as lowering (Hankamer & Mikkelsen 2005) or Local Dislocation (Embick & Marantz 2008) and a pre-syntactic morphological operation (e.g. Hankamer & Mikkelsen 2002), each approach bringing its own set of advantages and disadvantages.

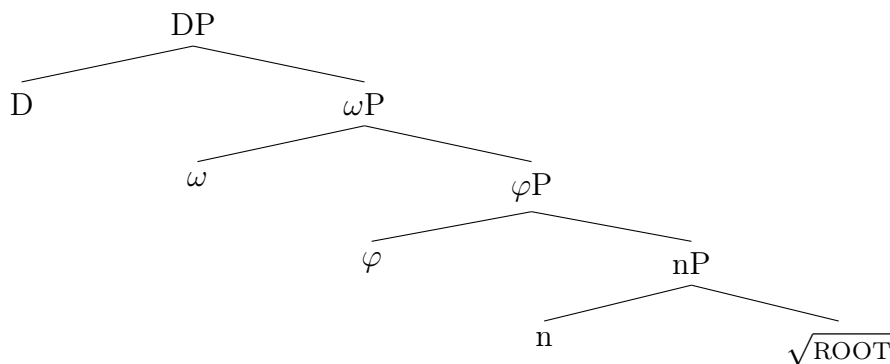
Bringing the focus to Icelandic, the picture becomes more complicated once more elements are taken into account, namely that there are three possible orders of numeral, adjective, noun, pronominal possessor and the article within a definite DP under a non-partitive interpretation (Magnússon 1984, Þráinsson 2007, Pfaff 2007, 2009, 2014).

- (4) a. frægu myndir-nar mínar þrjár  
*famous pictures-the my three*  
 my three famous pictures
- b. hinar þrjár frægu myndir mínar  
*the three famous pictures my*  
 my three famous pictures
- c. myndir-nar mínar þrjár frægu  
*pictures-the my three famous*  
 my three famous pictures

In previous accounts the order in (4b) was usually believed not to exist, hence previous analyses tended to treat the preposing of the noun and adjective as a single movement operation, deriving (4a) from (4b) (e.g. Sigurðsson 1993, Vangsnes 1999, Julien 2005, Schoorlemmer 2012). Pfaff (2007 et seq.) has however not only shown that this order exists, but the choice between the three orders is not semantically equivalent (Pfaff 2015:100-104).

In this chapter I propose an analysis couched in Distributed Morphology (DM; Halle & Marantz 1993, 1994, etc.), where I propose that a DP consists of a root and four functional heads (cf. Julien 2005, Harðarson 2016, i.a.), i.e. a category defining head and the two heads proposed in chapter two,  $\varphi$  and  $\omega$  along with D.

- (5) The structure of DP



For Icelandic, I assume that the realization of both the pre- and post-nominal article is a realization of D (e.g. Delsing 1993a, Sigurðsson 1993, Pfaff 2015) and the post-

nominal article is a result of the noun raising to D (cf. Sigurðsson 1993). To account for the patterns in (4a) and (4c), I propose that the preposing of the adjective and the noun is a result of two distinct operations, namely head movement of the noun (complex  $\omega^\circ$ ) to D and topic movement of an AP to the specifier position of DP. Finally I propose that the placement of pronominal possessors is due to their cliticizing to an element bearing a nominal category feature (drawing on Baker 2003).

This chapter is organized as follows: In §1 I provide a descriptive overview of the Icelandic TNP, starting with a discussion of the prenominal sphere in the context of Greenberg’s Universal # 20 and the different orders found therein. I will then follow up with a discussion of the postnominal sphere, the relations between the elements, both among themselves and with the prenominal sphere. In §2, I provide an overview of several previous approaches to the Icelandic TNP. In §3 I provide an analysis of the Icelandic TNP, and discuss some preliminary extension of the analysis to other North Germanic languages. In §4 this chapter is summarized.

## 4.1 Word order within the TNP

In this section I will discuss the core data revealing the organization of the Icelandic TNP. Aside from the c-command relations discussed in §4.1.2, the facts discussed in this section have been, for the most part, described before, namely by Magnússon (1984), Sigurðsson (1993, 2006) Þráinsson (2005, 2007) and Pfaff (2007, 2009, 2014, 2015). This section will be organized as follows: First I will discuss the prenominal field in the context of Greenberg’s Universal #20, and the three patterns that are observed with regards to the order of the numeral, adjective and noun. Following Pfaff (op. cit.) I refer to these as Patterns I, II and III.

- (6) a. Pattern I  
 ADJECTIVE > NOUN-ARTICLE > NUMERAL  
 b. Pattern II  
 ARTICLE > NUMERAL > ADJECTIVE > NOUN  
 c. Pattern III  
 NOUN-ARTICLE > NUMERAL > ADJECTIVE

I argue that two of the orders are derived from the third. Following that, I will discuss the postnominal sphere, its relation to the prenominal sphere as well as the relation between the elements therein. Finally, I will provide some preliminary discussion of structure.

### 4.1.1 The prenominal sphere and Greenberg's Universal #20

Greenberg (1966) proposed the following universal with regards to the order of demonstratives, numerals, adjectives and nouns:

- (7) **Universal 20**  
 When any or all of the items (demonstrative, numeral and descriptive adjective) precede the noun, they are always found in that order. If they follow, the order is either the same or its exact opposite.

[Greenberg 1966:87]

This linear configuration does apply to Icelandic, where, out of the 16 logical possibilities, the only allowable configuration of the three elements is the one in (8a). The same is true in case of definite TNPs with a free article, (8b), prenominal possessor (POSS ), (8c) and indefinite TNPs, (8d).<sup>2 3</sup> Note that Icelandic does not have an

<sup>2</sup>See discussion on POSS in the following subsection.

<sup>3</sup>To my knowledge, the only case of variation that occurs in the indefinite TNP is the occasional order N—ADJ . This order was more common in Old Icelandic (Faarlund 2004:68–69) as is exemplified by the following passage from *Brennunjálssaga* (~1300).

- (i) Hún var Skarphéðinsdóttir, **kvenskörungur mikill...**  
*she was Skarphéðin.GEN.daughter exceptional.woman great*  
 'She was a daughter of Skarphéðinn, a great exceptional woman...'

indefinite article.

- (8)    a.    DEM > NUM > ADJ > N                      c.    POSS > NUM > ADJ > N
- þessar þrjár frægu myndir                      Astridar    þrjár frægu myndir  
          *these three famous pictures*                      *Astrid.GEN three famous pictures*  
          ‘these three famous pictures’                      ‘Astrid’s three famous pictures’
- b.    ART > NUM > ADJ > N                      d.    NUM > ADJ > N
- hinar þrjár frægu myndir                      þrjár frægar myndir  
          *ART three famous pictures*                      *three famous pictures*  
          ‘the three famous pictures’                      ‘three famous pictures’

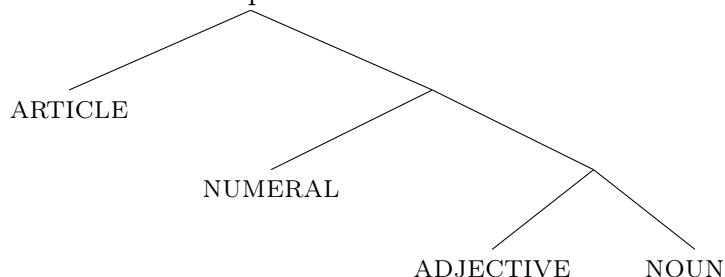
The construction in (8b) has often been written off as ‘literary’ or ‘bookish’ and usually reported as stilted (e.g. Sigurðsson 1993, 2006). However, as Pfaff (op. cit.), Práinsson (2007:88-90) and Ingason (to appear) show, that it is not always so. Studies conducted and reported by Pfaff have shown that given the proper context (8b) is not only natural, but in fact may be the preferred construction in that context. Hence the choice of construction can be of 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 as in (8c).

I follow e.g. Cinque (1999) and Abels & Neeleman (2012) in interpreting Greenberg’s Universal #20 as condition on hierarchical configuration, reflecting c-command. Hence the data in (8) would indicate that the structural configuration of the prenominal sphere is the following:

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In modern Icelandic this construction is used to produce a formal or archaic effect.

## (9) The Prenominal Sphere



In the definite TNP the order of elements in the prenominal sphere can vary to a certain degree. First, the most common and seemingly unmarked order is where the adjective and noun precede the article and numeral and the article is bound.<sup>4</sup> I will follow Pfaff (op. cit.) in referring to this configuration as *Pattern I* and to the configuration in (8b) above as *Pattern II*.

## (10) Pattern I: ADJ &gt; N-ART &gt; NUM

frægu myndir-nar þrjár  
*famous pictures-ART three*  
 ‘the three famous pictures’

## (11) Pattern II: ART &gt; NUM &gt; ADJ &gt; N

hinar þrjár frægu myndir  
*ART three famous pictures*  
 ‘the three famous pictures’

The third configuration (Pfaff’s *Pattern III*), involves the order in which the noun precedes all three of the elements. Again the article is bound under this configuration.

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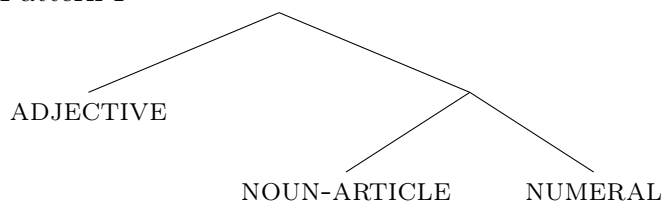
<sup>4</sup>Although there have been attempts of arguing that the bound article is an affix due to some affix-like phonological behavior (e.g. Rögnvaldsson 1990, Indriðason 1994), when the overall characteristics are taken into account, the article does show clitic-like behavior. Following the criteria of e.g. Zwicky (1977) and Zwicky & Pullum (1983), the bound article, for instance, has a free word counterpart and it carries its own inflection (see e.g. Faarlund (2009) on Old Norse, Börjars & Harries (2008) on modern Mainland Scandinavian and Anderson (1974), Kiparsky (1984), Pfaff (2007) on Icelandic). Due to the conflicting evidence in this regard I will be using the more neutral terms *bound/free* in this dissertation. I will return to this issue in the next chapter.

(12) Pattern III: N-ART > NUM > ADJ

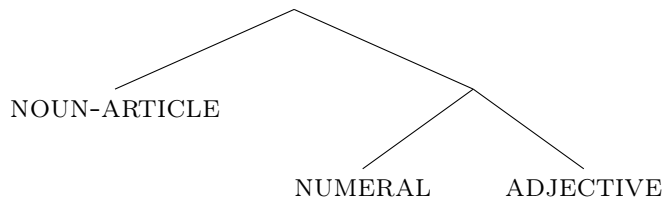
myndir-nar þrjár frægu  
*pictures-ART three famous*  
 ‘the three famous pictures’

Following e.g. Magnússon (1984), Delsing (1993b), Sigurðsson (1993), Pfaff (2007, 2009, 2015), I take Pattern II, i.e. *refpatso* to be the base from which Patterns I and III are derived. This would indicate the following structural configurations for (10) and (12), respectively.

(13) Pattern I



(14) Pattern III



Other configurations involving the bound article are not possible.<sup>5</sup>

(15) a. \*NUM > ADJ > N-ART

\*þrjár góðu myndir-nar  
*three good pictures-ART*

b. \*NUM > N-ART > ADJ

\*þrjár bækur-nar góðu  
*three books-ART good*

To sum up, the only deviation from the apparent base order of elements involve the position of the adjective and the noun relative to the numeral. Either both

<sup>5</sup>(15a) and (15b) are possible under a partitive reading for some speakers. For many speakers, however, the partitive reading requires the material following the numeral to be either genitive or preceded by a preposition.



adjective and noun precede the numeral, (10), or the noun precedes the numeral and the adjective follows, (12).

### 4.1.2 A note on adjectival inflection

Adjectives are inflected in terms of gender, number, and case and agree with the noun. In addition to these features, there are two paradigms for each adjective, weak and strong. The weak inflection only occurs within definite TNP (whether truly or falsely definite). Examples of each are shown in (16a) and (16b), respectively.

- |      |    |                                                                    |    |                                                                            |
|------|----|--------------------------------------------------------------------|----|----------------------------------------------------------------------------|
| (16) | a. | fræg-ur      hákarl<br><i>famous-STR shark</i><br>‘a famous shark’ | b. | fræg-i      hákarl-inn<br><i>famous-WK shark-ART</i><br>‘the famous shark’ |
|------|----|--------------------------------------------------------------------|----|----------------------------------------------------------------------------|

The noun in (16) is masculine, singular and nominative and so, the adjective agrees with the noun in terms of these features. In (16a), the TNP is indefinite, so the adjective *fræg-* receives the strong, masculine, nominative, singular ending *-ur*. In (16b), the TNP is definite and the adjective receives the weak ending *-i*.

Outside of the definite TNP adjectives only receive the strong endings regardless of whether the TNP it agrees with is definite or indefinite.

- |      |    |                                                                                       |
|------|----|---------------------------------------------------------------------------------------|
| (17) | a. | Hákarlar eru glað-ir<br><i>sharks are happy-STR</i><br>‘Sharks are happy’             |
|      | b. | Hákarlar-nir eru glað-ir<br><i>sharks-ART are happy-STR</i><br>‘The sharks are happy’ |
|      | c. | *Hákarlar-nir eru glað-ir<br><i>sharks-ART are happy-WK</i><br>‘The sharks are happy’ |

Hence the weak declension is conditioned on TNP-internal factors. These will be discussed in §3.

### 4.1.3 The post-nominal sphere

The default order of elements in the post-nominal sphere is NOUN > POSS > PP. This order does not vary within the TNP, nor does it appear to be affected by the thematic role of the POSS, whether it is a possessor, agent or a theme. The leftmost argument may be realized as a genitive, whereas others must be realized as PPs. This is shown below. Icelandic only allows for one genitive in a non-partitive construction (Magnússon 1984:102), (18).

(18) N > POSS > PP

- a. mynd Garp-s af Astridi  
*picture Garp-GEN of Astrid*  
 ‘Garpur’s picture of Astrid’
- b. \*mynd Garp-s Astrid-ar  
*picture Garp-GEN Astrid-GEN*
- c. greining Astrid-ar á nafnliðaformgerð  
*analysis Astrid-GEN on noun.phrase.structure*  
 ‘Astrid’s analysis of NP structure’
- d. \*greining Astrid-ar nafnliðaformgerð-ar  
*analysis AstridAstrid-GEN noun.phrase.structure-GEN*

Note, that unlike, e.g., English and German, Icelandic allows, and sometimes requires the possessive and definite article to cooccur.

- (19) a. bíll-(inn) minn                      b. bíll-inn hans Jóns  
           *car-ART my*                                *car-ART PROP Jón*  
           ‘my car’                                      ‘Jón’s car’

The presence or absence of the definite article does not affect the order of the postnominal elements, although there are some interactions. We start with the simple possessive construction in which the definite article is absent.

In the absence of a PP, the genitive is ambiguous between the different available thematic roles. In the case of the examples in (20), Both genitives are ambiguous

between agent and theme. The genitive in (20a) is additionally a potential possessor.

- (20) a. mynd Astrid-ar                      b. greining Garp-s  
       *picture Astrid-GEN*                      *analysis Garp-GEN*  
       ‘Astrid’s picture’                      ‘Garpur’s analysis’

This ambiguity is lost when PP is added to the structure and the genitive is only interpreted as an agent and the PP is interpreted as theme.

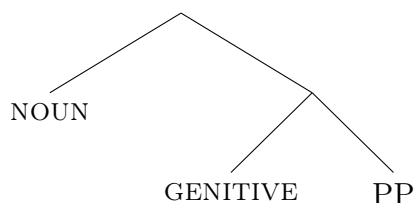
- (21) N > POSS > PP
- a. mynd Astrid-ar af Ottó  
       *picture Astrid-GEN of Ottó*  
       ‘Astrid’s picture of Ottó’/\*‘Ottó’s picture of Astrid’
- b. greining Astrid-ar á Garpur  
       *analysis Astrid-GEN on Garpur*  
       ‘Astrid’s analysis of Garpur’/\*‘Garpur’s analysis of Astrid’

PP cannot precede the genitive.

- (22) \*N > PP > POSS
- a. \*mynd af Ottó Astrid-ar  
       *picture of Ottó Astrid-GEN*  
       ‘Astrid’s picture of Ottó’
- b. \*greining á Garpur Astrid-ar  
       *analysis on Garpur Astrid-GEN*  
       ‘Astrid’s analysis of Garpur’

The first approximation of the postnominal sphere would be the following, assuming the order reflects c-command relationship with respect to the noun.

## (23) The Postnominal Sphere (first approximation)



The acceptability of the indefinite possessive construction is contingent on several factors, e.g. register, speaker variation, and in some cases semantic classes of the noun (see e.g. Magnússon 1984:100–1, Sigurðsson 1993:192–3 and Þráinsson 2007:93). In the following example, the choice between the definite and indefinite possessive constructions is optional when the noun *bók* ‘book’ refers to the work itself rather than the physical object. When *bók* refers to the physical object, the indefinite construction is much less acceptable.

- (24) a. *Bók/bók-in mín um íslenska setningafræði fékk góða*  
*book/book-ART my about Icelandic syntax received good*  
*dóma.*  
*reviews*  
 ‘My book on Icelandic syntax received good reviews.’
- b. *Hvar er ?\*bók/bók-in mín um íslenska setningafræði?*  
*where is book/book-ART about Icelandic syntax*  
 ‘Where is my book on Icelandic syntax’ [Þráinsson 2007:93]

In case of a common noun POSS however, the TNP must usually be either indefinite or POSS must be contained within a PP in case of a part-whole relation or inalienable possession (Þráinsson 2007:93–94).

- (25) a. *bók/?bók-in stelpunnar*  
*book/book-ART girl.GEN.ART*  
 ‘the girl’s book’
- b. *þak/\*þak-ið hússins*  
*roof/roof-ART house.GEN.ART*  
 ‘the roof of the house’ [Þráinsson 2007:93]

- (26) a. þak-ið á húsinu  
*roof-ART on house.ART*  
 ‘the roof of the house’ [Práinsson 2007:94]
- b. \*bók-in á stelpunni  
*book-ART on girl.ART*  
 ‘the girl’s book’

In definite possessive construction, proper noun POSS must take what Sigurðsson (2006) refers to as a proprial article (PROP). Its obligatoriness is subject to a degree of dialectal variation (Práinsson 2007:95). PROP agrees with POSS in terms of gender and number (and presumably case) and has the same form as third person pronouns.<sup>6 7</sup>

- (27) a. mynd-in hans Garps  
*picture-ART PROP Garpur.GEN*  
 ‘Garpur’s picture’
- b. %mynd-in Garps  
*picture-ART Garpur.GEN*  
 ‘Garpur’s picture’

PROP only appears when POSS is postnominal. Note that the definite article is not realized when POSS is prenominal (e.g. Magnússon 1984).

- (28) a. Garp-s mynd  
*Garpur-GEN picture*  
 ‘Garpur’s picture’
- b. \*hans Garp-s mynd  
*PROP Garpur-GEN picture*
- c. \*Garp-s mynd hans  
*Garpur-GEN picture PROP*

<sup>6</sup>Although I will set aside a full study of the properties of the proprial article, it is worth mentioning that the proprial article bears some resemblance to clitic doubling, i.e. an agreeing pronominal form, which in some languages can form an inseparable constituent with the associate and can also be incompatible with focus (see e.g. Runic 2014).

<sup>7</sup>Note that these examples are still ambiguous between different thematic roles.

As mentioned above, in case of argument-taking nominals, such as *greining-* in (18c), in the absence of an agent, the theme, which is a PP in (18c), can be realized as genitive.

- (29) greining nafnliðaformgerð-ar  
*analysis noun.phrase.structure-GEN*  
 ‘analysis of NP-structure’

Genitives can also serve as antecedents to reflexives within PPs. This does not seem to be affected by whether the genitive is a possessor or an agent. In (30a) Garp can be either the creator or the owner of the picture. In the absence of an argument PP, the genitive can also be a theme. This relation is not symmetrical, as is shown in (30c) and (30d).

- (30) a. mynd Garp-s af sjálfum sér  
*picture Garp-GEN of self REFL*  
 ‘Garp’s picture of himself’  
 b. greining Astrid-ar á sjálfri sér  
*analysis Astrid-GEN on self REFL*  
 ‘Astrid’s analysis of herself’  
 c. mynd hvers lækni-s af hundi-num sínum  
*picture each doctor-GEN of dog-ARTself’s*  
 ‘each doctor’s picture of his dog’  
 d. \*mynd læknis-ins síns af hverjum hundi  
*picture doctor-ART-GEN self’s of each dog*  
 ‘each dog’s picture belonging to their doctor’

Variable binding and binding of reciprocals are known to occur where the antecedent binds out of a PP in English (e.g. Pesetsky 1995) and the same is true of Icelandic:

- (31) bréf [til hvers barns<sub>i</sub>] [frá föður sínum<sub>i</sub>]  
*letter to each child from father self*  
 ‘each child’s letter from their father’

Hence the fact that in (30d), EACH DOG cannot bind POSS , indicates that the relationship between the two is asymmetrical.

The same is true of pronominal possessors (of any role) whether genitive, (32a), or agreeing, (32b).

- (32) 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’

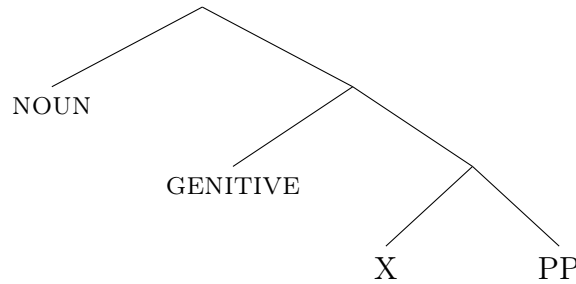
- (33) a. \*mynd sín af honum  
*picture self of him REFL*  
 ‘his picture of himself’

- b. \*mynd sjálfs mín af 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, for the most part, not be distinguishing between the different types of genitives for the remainder of this chapter. I will refer to them as possessors.

Given the binding facts discussed above, the second approximation of the post-nominal sphere is the following:

## (34) The Postnominal Sphere (second approximation)



The order of the PPs matters in terms of whether binding relations between POSS and the PP hold. In (35a), POSS can bind a reflexive within both the theme and the goal. However, when the order of the two PPs is reversed, as in (35b), POSS no longer binds a reflexive within the theme, but the binding relation between POSS and the goal still hold.

## (35) a. THEME &gt; GOAL

gjöf Jóns<sub>i</sub> á hjarta sín<sub>u</sub><sub>i</sub> til elskuga sín<sub>s</sub><sub>i</sub>  
*gift Jón.GEN on heart self's to lover self's*  
 'John's gift of his heart to his lover'

## b. GOAL &gt; THEME

gjöf Jóns<sub>i</sub> til elskhuga sín<sub>s</sub><sub>i</sub> á hjarta \*sín<sub>u</sub><sub>i</sub>/hans<sub>i</sub>  
*gift Jón.GEN to lover self's on heart self's/his*

This indicates that whatever the source of the different order of the theme and goal ultimately is, when the goal linearly precedes the theme, the theme appears to be structurally higher than not just the goal but the possessor as well. POSS appears then to asymmetrically c-command both PPs in (35a), but does not asymmetrically c-command the goal in (35b). Note however that it is not the case that the order THEME > GOAL forms a binding domain excluding the possessor as the theme can be bound by an antecedent from outside the NP.



- (36) Jón<sub>i</sub> sá alltaf eftir [gjöf sinni<sub>i</sub> [til Haralds] [á hjarta sínu<sub>i</sub>]].  
*Jón saw always after gift self's to Haraldur on heart self's*  
 'Jón always regretted the gift of his heart to Haraldur.'

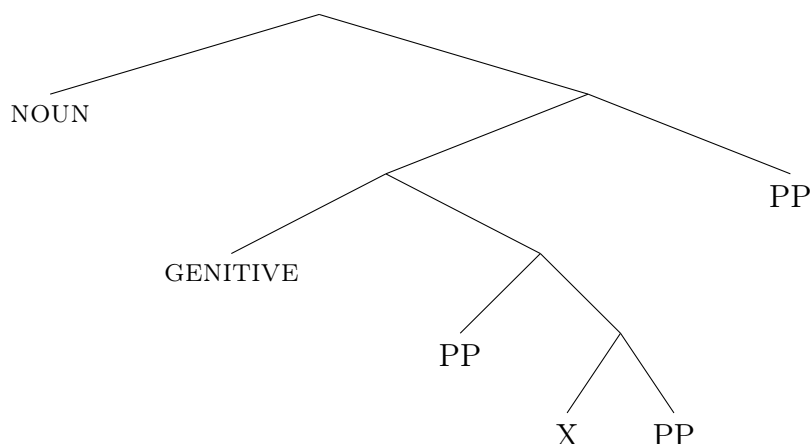
In (36), the subject *Jón* can bind the GOAL. This indicates that the inability of the possessor to bind the GOAL is a matter of c-command, and not binding domains.

We also observe asymmetrical binding relationships between PPs within the TNP in which the binder linearly follows the bindee.

- (37) a. Bækur um bæjarfélag hvors annars eftir Sverri og Astridi seljast  
*books about town each other's by Sverrir and Astrid sell*  
 alltaf vel.  
*always well*  
 'Sverrir and Astrid's books about each other's town always sell well.'
- b. \*Bækur um Sverri og Astridi eftir hvort annað seljast alltaf vel.  
*books about Sverrir and Astrid after each other sell always well*  
 'Books about Sverrir and Astrid, written by each about the other, always sell well.'

Here, the 'by-phrase' appears structurally higher than the theme PP, although it follows in terms of linear order. Which indicates the following structural configuration.

- (38) The Postnominal Sphere (third approximation)

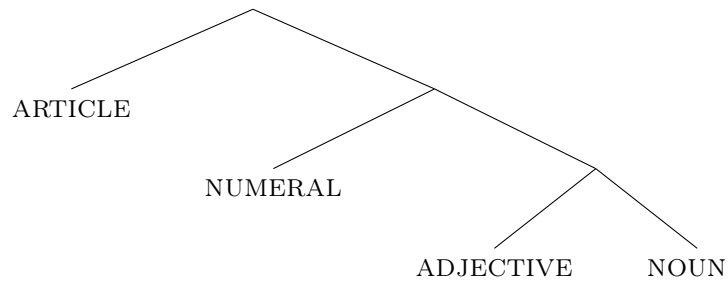


Hence, it would seem with respect to PPs that rightward is not necessarily downward.

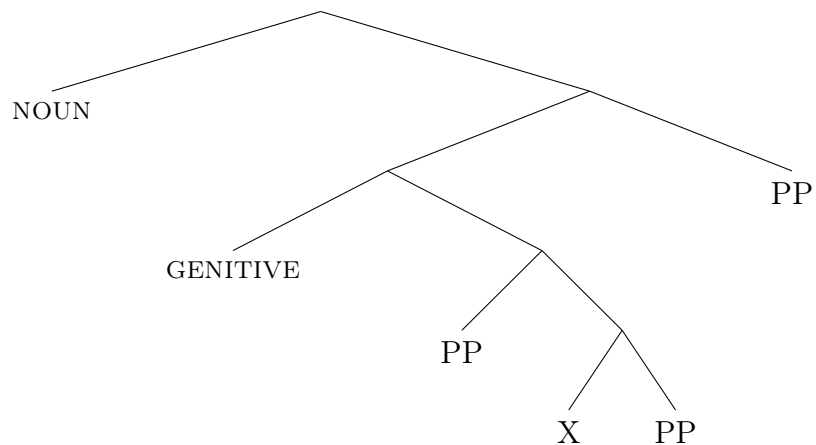
#### 4.1.4 Putting the pieces together

Having established both the pre-and post-nominal spheres, it is time to examine how the patterns described above come together. The two patterns are repeated here below.

(39) The Prenominal Sphere (base order)



(40) The Postnominal Sphere (third approximation)



In case of Pattern II, (41), and in the presence of demonstratives, (42), the two spheres come together as expected.

(41) ART > NUM > ADJ > N > POSS > PP

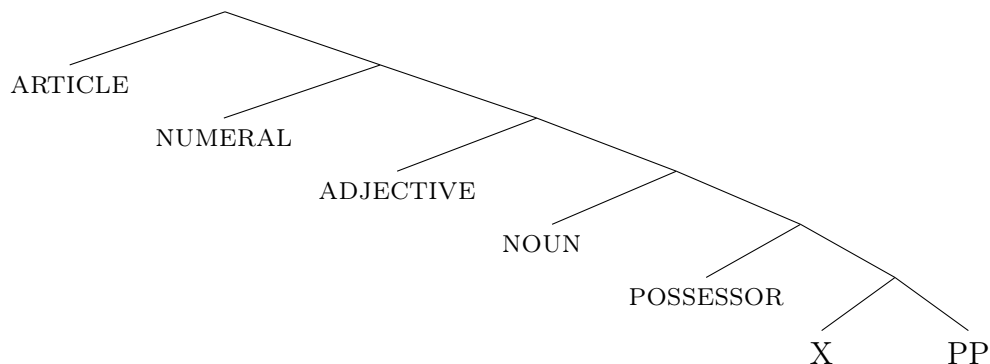
- a. hinar þrjár góðu myndir mínar af Garpi  
 ART *three good pictures my.NOM of Garp*  
 ‘my three good pictures of Garpur’
- b. hinar þrjár góðu myndir han-s af Garpi  
 ART *three good pictures he-GEN of Garp*  
 ‘his three good pictures of Garp’
- c. hinar þrjár góðu myndir (hans) Jónas-ar af Garpi  
 art *three good pictures PROP Jónas-GEN of Garp*  
 ‘Jonas’ three good pictures of Garp’

(42) DEM > NUM > ADJ > N > POSS > PP

- a. þessar þrjár góðu myndir mínar af Garpi  
 DEM *three good pictures my.NOM of Garp*  
 ‘these three good pictures of mine of Garp’
- b. þessar þrjár góðu myndir han-s af Garpi  
 DEM *three good pictures he-GEN of Garp*  
 ‘these three good pictures of his of Garp’
- c. þessar þrjár góðu myndir (hans) Jónas-ar af Garpi  
 these *three good pictures PROP Jónas-GEN of Garp*  
 ‘these three good pictures of Jonas’ of Garp’

A first approximation of the structure of the TNP would then be the following:

(43) The structure of the Icelandic TNP (first approximation)



However, in case of the bound article, pronominal possessors directly follow the

noun, but non-pronominal possessors cannot (e.g. Magnússon 1984). This is the case for both Pattern I and Pattern III.

(44) ADJ > N-ART > POSS > NUM > PP

- a. góðu myndir-nar mínar þrjár af Astrid  
*good pictures-ART my.NOM three of Astrid*  
 ‘my three good pictures of Astrid’
- b. góðu myndir-nar han-s þrjár af Astrid  
*good pictures-ART he-GEN three of Astrid*  
 ‘his three good pictures of Astrid’
- c. \*góðu myndir-nar hans Jónas-ar þrjár af Astrid  
*good pictures-ART PROP Jónas-GEN three of Astrid*  
 ‘Jónas’ three good pictures of Astrid’

This position of the pronominal POSS in (44) is obligatory. Non-pronominal possessors must occur to the right of the numeral. Note also that the proprial article and the proper noun possessor cannot be split in this construction

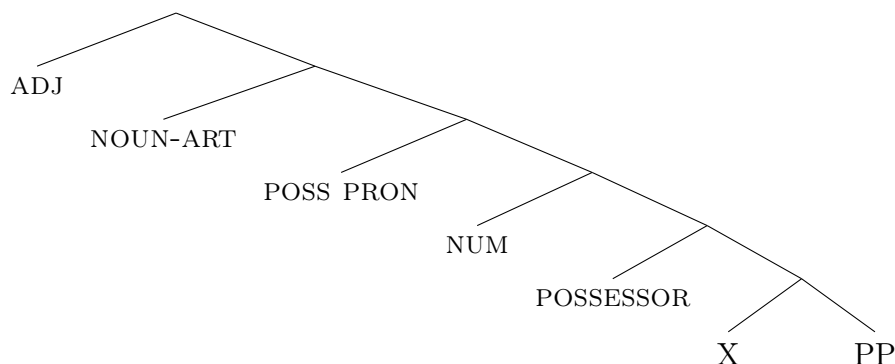
(45) ADJ > N-ART > NUM > POSS > PP

- a. \*góðu myndir-nar þrjár mínar af Astrid  
*good pictures-ART three my.NOM of Astrid*
- b. \*góðu myndir-nar þrjár han-s af Astrid  
*good pictures-ART three he-GEN of Astrid*
- c. góðu myndir-nar þrjár hans Jónasar af Astrid  
*good pictures-ART three PROP Jónas-GEN of Astrid*
- d. \*góðu myndir-nar hans þrjár Jónasar af Astrid  
*good pictures-ART PROP three Jónas-GEN of Astrid*

The first approximation of the structure of Pattern I would be the following. Note the different position of the possessive pronoun and full noun possessor.<sup>8</sup>

<sup>8</sup>Recall that the proprial article is never separated from the possessor.

- (46) The structural configuration of Pattern I (first approximation)



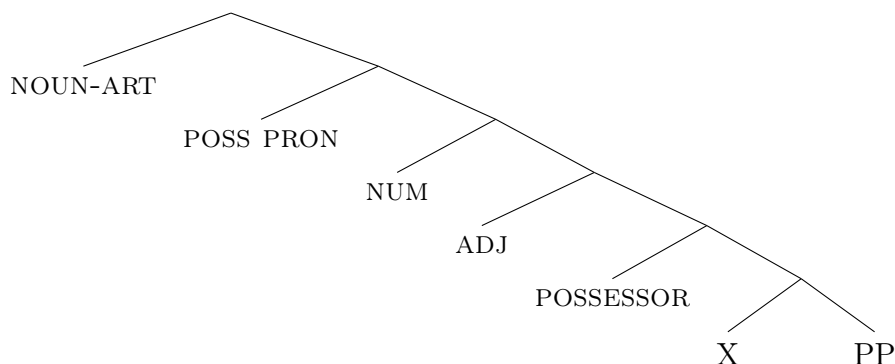
Just as mentioned above, the same behaviour is observed in case of Pattern III, i.e. pronominal possessors directly follow the noun, whereas non-pronominal possessors must follow the numeral.

- (47) N-ART > POSS PRON > NUM > ADJ > POSS > PP

- a. kenningar-nar (mínar) þrjár svokölluðu (\*mínar) um NLformgerð  
*theories-ART my.NOM three so-called my.NOM about NP.structure*  
 ‘my three so-called theories about NP structure’
- b. kenningar-nar (henn-ar) þrjár svokölluðu (\*henn-ar) um NLformgerð  
*theories-ART she.GEN three so-called she.GEN about NP.structure*  
 ‘her three so-called theories about NP structure’
- c. kenningar-nar (\*hennar Astridar) þrjár svokölluðu (hennar  
*theories-ART PROP Astrid.GEN three so-called PROP*  
*Astridar) um NLformgerð*  
*Astrid.GEN about NP.structure*  
 ‘Astrid’s three so-called theories about NP structure’

The first approximation of the structure of Pattern III is as follows.

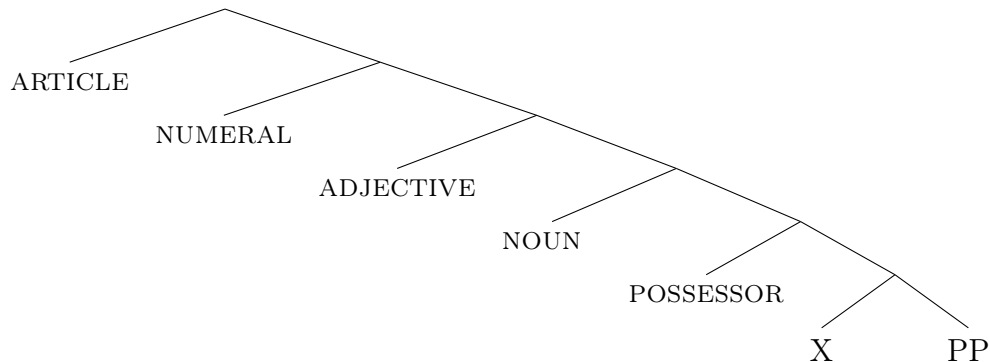
(48) The structural configuration of Pattern III (first approximation)



#### 4.1.5 Summary

To sum up, starting with the prenominal sphere, I followed e.g. Cinque (1999) and Abels & Neeleman (2012) in interpreting Greenberg’s Universal #20 as condition on hierarchical configuration, reflecting c-command. I also assume that both the bound and the free articles are realizations of the same head (cf. Magnússon 1984, Delsing 1993b, Sigurðsson 1993, Pfaff 2007, 2009, 2015), hence I take Pattern II to be the base from which Patterns I and III are derived (regardless of whether the position of the noun is its base position or not). As we saw in the previous subsection, POSS asymmetrically binds certain postnominal PPs to its right, indicating that these PPs are structurally “lower” than POSS. With all of this in mind, the hierarchical configuration of the elements would be along the lines of the following:

(49) The structure of the Icelandic TNP (first approximation)



What remains to be seen is how this hierarchical configuration can be achieved in a way that allows for the derivation of all possible orders but excludes the impossible ones. We'll return to that question in §3.

## 4.2 Previous approaches

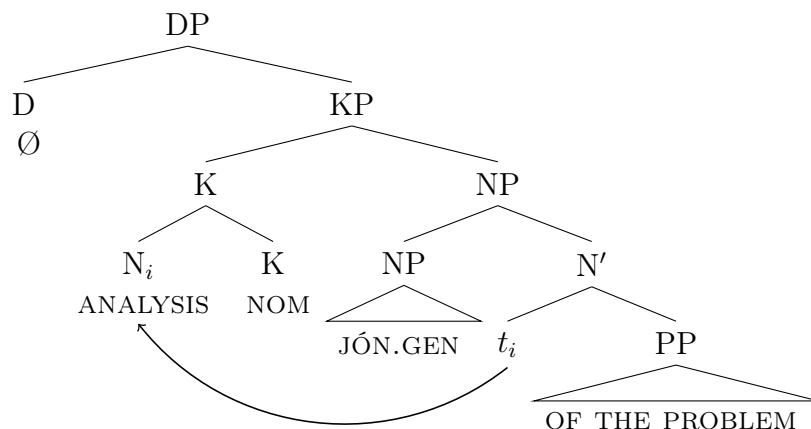
As mentioned above, the general consensus in previous accounts is that pattern II served as a base from which other patterns are derived and in the absence of evidence for pattern III, there was considerable motivation for unifying the fronting of the adjective and the noun under a single movement operation or the same series of operations. These approaches generally fall into two categories: on the one hand there are the head movement approaches (e.g. Delsing 1993b, Sigurðsson 1993, Lohrmann 2010 i.a.). Here Lohrmann (2010) stands out as she argues for a two-article approach. And on the other hand there are the phrasal movement approaches (e.g. Vangsnes 1999, Julien 2005, Norris 2011a, Schoorlemmer 2012). More recent approaches have attempted to accommodate both the postnominal sphere and Pattern III, such as Pfaff (2015), who argues for a phrasal movement account accompanied by an Adger (2013)-style TNP structure, and Ingason (2016), who argues for a low phrasal movement coupled with Local Dislocation (cf. Embick & Noyer 2001, Embick & Marantz

2008). In what follows, I will first discuss the families of head movement and phrasal movement approaches, their advantages and disadvantages.

### 4.2.1 Head movement analyses

Sigurðsson (1993) proposes a DP analysis of the Icelandic TNP and argues that the bound article in Icelandic was a result of head movement of the noun to D. He assumes the TNP to have the structure shown below, where PPs are complements to N and possessors are specifiers to N. The NP is dominated by a head K, to which the noun must obligatorily move to check an m-case feature on K. KP is subsequently dominated by D, which in case of indefinite TNPs is null.<sup>9</sup>

- (50) a. greining Jóns á vandamálinu  
*analysis.NOM Jón.GEN on problem.ART*  
 Jón's analysis of the problem  
 b.



[Adapted from Sigurðsson 1993:191]

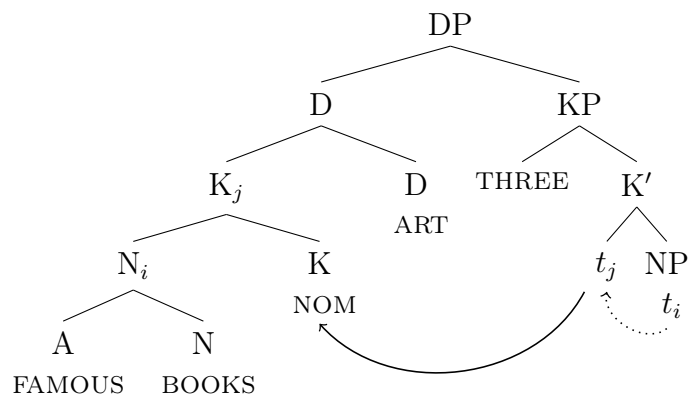
Sigurðsson furthermore assumes that adjectives are head-adjoined to the noun and adjective-modifying adverbs are, in turn head adjoined to A. In case of definite

<sup>9</sup>Note that Sigurðsson does not address concord/agreement within the DP. Hence it is left open as to how case is achieved in other elements within the TNP. This could presumably be achieved through concord (cf. Norris 2011b). Under such a system it would not be necessary to assume KPs dominating all case marked elements.



TNPs, Sigurðsson assumes pattern II as the base order from which pattern I is derived by head movement of K to D. Since the adjective is head adjoined to N, it will obligatorily move along with the noun.<sup>10</sup>

- (51) a. frægu bækur-nar þrjár  
           *famous books.NOM.ART three*  
           the three famous books  
       b.



[Adapted from Sigurðsson 1993:194]

This approach correctly predicts that, when present, the possessor and the PPs will be stranded in their position following the numeral. Furthermore the proper structural relationship between the possessor and the PP, as discussed above, follow.

Possessors asymmetrically c-command (some) PPs, but not vice versa.

<sup>10</sup>This approach correctly predicts the inability of attributive adjectives taking complements in Icelandic when preceding the noun. It is, however, possible for postnominal adjectives.

- (i) a. \*stoltur af dóttur sinni faðir  
           *proud of daughter self's father*  
       b. faðir stoltur af dóttur sinni  
           *father proud of daughter self's*  
           ‘a father proud of his daughter’

The conditions on AP complements in Icelandic are not clear at this time. It is possible that these APs would be properly analyzed as pretheticals, in which case they would not counter Sigurðsson's proposal. Hence, I'll set these aside for further study.

- (52) a. mynd hvers þáttakanda<sub>i</sub> af hundinum sínum<sub>i</sub>  
*picture each participant of dog.ART REFL*  
 ‘each participant’s picture of their dog’
- b. \*mynd sín<sub>i</sub> af hverjum þáttakanda<sub>i</sub>  
*picture REFL of each participant*  
 ‘each participants picture of themselves’

This approach runs into several problems, however. First, under this approach, the adjective and noun form a constituent to the exclusion of all else in the structure. Ellipsis points to the contrary, where this exact string cannot be elided. This is shown in (53a), where POSS is stranded and the noun and adjective are elided and the result is ungrammatical. In (53b), an adjective is stranded and the noun and PP have been elided, resulting in a grammatical sentence. In the examples below, the antecedent is underlined and the elided material marked by strikethrough.

- (53) a. \*?Astrid hefur lesið nýja bók kennara síns á sama tíma og  
*Astrid has read new book teacher.GEN self’s on same time and*  
 hún skrifaði ritdóm um ~~nýja bók~~ skólameistara.  
*she wrote review about headmaster.GEN*  
 ‘Astrid must have read her teacher’s new book at the same time as she was writing about the headmaster’s new book.’
- b. Jónas vildi horfa á langa heimildamynd um Kalda Stríðið en  
*Jónas wanted watch on long documentary about Cold War.ART but*  
 Astrid nennti ekki í meira en stutta  
*Astrid be.bothered not in more than short*  
 heimildamynd um Kalda Stríðið
- ‘Jónas wanted to watch a long documentary on the Cold War, but Astrid only wanted to watch a short one.’

Second, assuming that the noun and adjective form a complex head predicts that the noun and adjective will behave as a compound with regards to prosody, which is problematic even when compound stress is set aside. In Icelandic, the *Designated Terminal Element* (DTE), i.e. the syllable that “attracts the strongest tonal accent”

is usually the first syllable of the last word in the phrase (Árnason 2011:286). The DTE is indicated by small caps.

- (54) Nanna borðar HAFRAGRAUT  
*Nanna eats oatmeal*  
 ‘Nanna eats oatmeal’ [Árnason 2011:286]

In (54), the DTE is the syllable /hav/, which is the first syllable in a two-stem compound. If the noun and adjective are indeed a complex head, it would be expected that the DTE would be the first syllable of the adjective. That is not the case in indefinite TNPs:

- (55) Ég gaf Jóni gamlan HEST  
*I gave Jón old.STR horse*  
 ‘I gave Jón an old horse.’ [Árnason 2011:289]

A possible remedy would be to assume that the adjective is a head that takes KP as a complement (cf. Abney 1987, Delsing 1993b). In that case the noun and adjective would not form a complex head in indefinite TNPs. Under standard constraints on head movement (e.g. Travis 1984, Rizzi 1990) head-movement of N to D will obligatorily move through A, thus achieving Pattern I. That sidesteps the problem for (55), and it is often the case that the DTE is the first syllable of the adjective in definite TNPs, (56a), but it is not always so, (56b), although the conditions behind these exceptions are not well understood.

- (56) a. Ég gaf Jóni GAMLA hestinn.  
*I gave Jón old.WK horse.ART*  
 ‘I gave Jón the old horse.’  
 b. Þarna er gamla PÓSTHÚSIÐ.  
*there is old.WK post.house*  
 ‘There is the old post office.’

[Árnason 2011:289]

As Sigurðsson notes himself, if the adjectives are head adjoined to N, it is expected that intensifiers are then subsequently head adjoined to A, as they are fronted with the A-N block to D.

- (57) a. hinn **rosalega** fulli ráðstefnugestur  
 ART *extremely drunk conference.guest*
- b. **rosalega** fulli ráðstefnugestur-inn  
*extremely drunk conference.guest-ART*

However, an intensifier can be extracted out of an adjectival phrase when the adjective is predicative (Rögnvaldsson 1996, Talić 2015b,a). If the intensifier is head adjoined, intensifier extraction is predicted to be impossible under any circumstance given the ban on excorporation (Baker 1988a, Ouhalla 1988).

- (58) a. Ráðstefnugestur-inn var **rosalega** fullur  
*conference.guest-ART was extremely drunk*
- b. **Rosalega** var ráðstefnugestur-inn fullur  
*extremely was conference.guest-ART drunk*  
 ‘The conference attendant was extremely drunk.’

This could be ameliorated by an additional assumption that head adjunction only occurs in a attributive context whereas in predicative context, the intensifier is in a specifier position. This would also correctly predict that only predicative adjectives can take complements.

- (59) a. Ottó er [stoltur af systur sinni]  
*Ottó is proud of sister self*  
 ‘Ottó is proud of his sister.’
- b. \*[stoltur af systur sinni] drengur  
*proud of sister self boy*  
 Intended: ‘a boy who is proud of his sister’

However, it would be impossible to derive pattern III under this approach. Regard-

less of whether the adjective is head adjoined or takes KP as a complement, N will either have to excorporate, or violate the Head Movement Constraint.

We will see in the following section, however, that through a series of updates and modifications, a head movement approach can account for all three patterns.

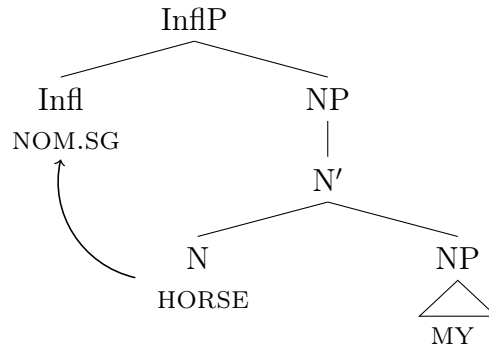
### **Getting Old (Norse)**

Faarlund (2004, 2009) proposes an analysis of the Old Norse TNP 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 structure assumed by Faarlund shares certain similarities with the structure assumed in this chapter.

The structure assumed by Faarlund is a slightly modified version of Julien (2005)'s structure, which will be discussed further below. The noun enters the derivation as a bare stem which is dominated by a head Infl, which realizes inflectional suffixes of the noun. 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).

- (60) a. hest-r minn  
*horse-NOM.SG my*  
 ‘my horse’ [Old Norse]

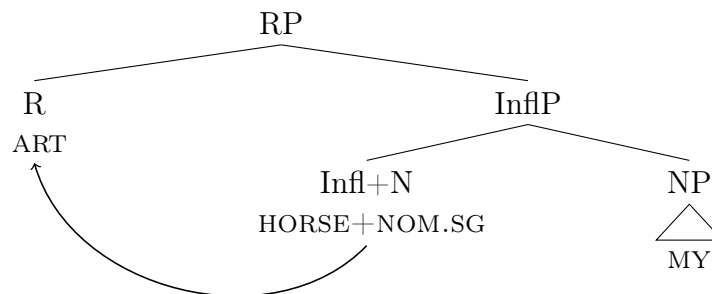
b.



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 bound article, N+Infl undergoes head movement to R.

- (61) a. hestr-inn minn  
*horse-ART my*  
 ‘my horse’ [Old Norse]

b.

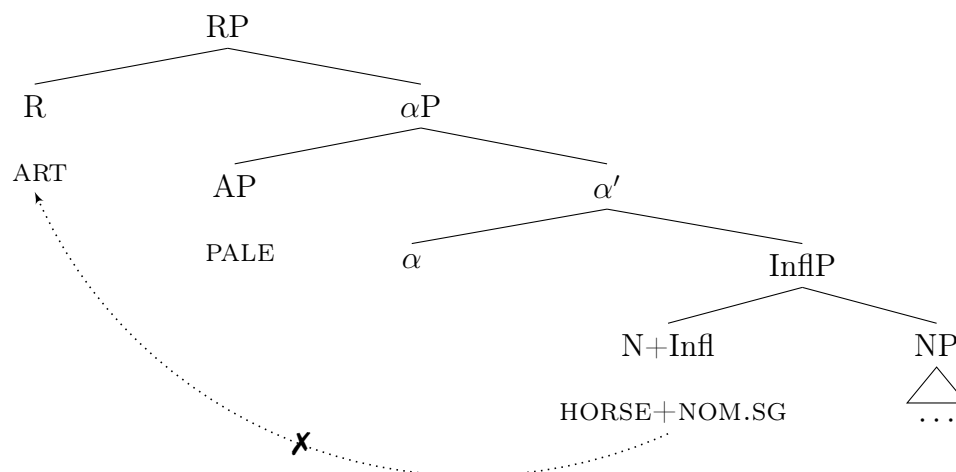


When an adjective is present, the AP is a specifier of an iterative  $\alpha$ P (Julien 2005). Following e.g. Cinque's (1994, 1999) work on adverbs, Julien proposed that in case of multiple adjectives, each AP will be in a specifier position of their respective  $\alpha$  heads and ordering effects of adjectives stem from features of  $\alpha$ . When  $\alpha$  is present,

movement of N+Infl to R is blocked, forcing the appearance of the free article.

- (62) a. (h)inn fólvi hestr  
 ART pale horse  
 ‘the pale horse’ [Old Norse]

b.



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  $\alpha$  follows from standard constraints assumed for head movement. It is not clear, however, what exactly blocks the movement of N+Infl to  $\alpha$ , and then a subsequent movement of N+Infl+ $\alpha$  to R.  $\alpha$  is a phonologically null head, and adjunction of N+Infl to  $\alpha$  should in fact not have any effects on phonological shape of the resulting complex head N+Infl+ $\alpha$ +R.<sup>11</sup>

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

<sup>11</sup>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  $\alpha$ P intervening, AP becomes the closest goal for D, which cannot identify D. Hence insertion of a determiner or a demonstrative is required. However, given that Faarlund’s approach involves head movement rather than phrasal movement, the visibility problem can be sidestepped by assuming some form of feature percolation (e.g. Lieber 1980, 1992, Selkirk 1982, Di Sciullo & Williams 1987)

ferred that they are specifiers of a Cardinal head (*Card<sup>o</sup>*), dominating  $\alpha$ P. Either way, numerals are predicted to intervene like the adjective does in (62). This prediction is borne out in the modern Mainland Scandinavian languages (see e.g. Julien 2005:30 and discussion below). This is not true of Old Norse, as can be seen from the following example where the noun has moved across the numeral.

- (63)    *haglkorn-it      eitt*  
           *hail.grain-ART one*  
           ‘one grain of hail’                      [Old Norse adapted from Faarlund (2004:74)]

Whether  $\alpha$  or *Card<sup>o</sup>*, in either situation there is a head intervening between N and D and hence N-to-D movement is expected to be blocked.<sup>12</sup>

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):

- (64)    a.    *þau    in      stóru skip*  
               *those ART large ships*  
               ‘those big ships’  
           b.    *sá hinn sami*  
               *he ART same*  
               ‘the same one’

Given the various assumptions of pronominal structure, namely that pronouns are in fact Ds (e.g. Dobrovie-Sorin & Giurgea 2011), 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 1995a:5). If demonstratives are simply Ds and

<sup>12</sup>Note also that, given the limitations of the data at hand, it is difficult to conclusively exclude a bound article in the presence of an adjective in Old Norse.



hence both minimal and maximal, they can be placed in spec-RP, thus eliminating the need for an additional projection.

### 4.2.2 Phrasal movement approaches

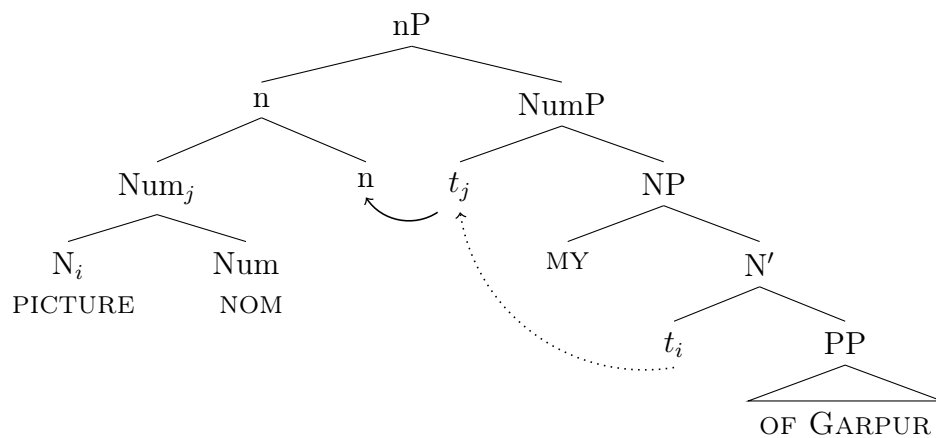
In recent years, the trend has been to derive pattern I from pattern II via phrasal movement of a constituent containing the noun and adjective to Spec-DP (e.g. Vangsnes 1999, Julien 2005, Norris 2011a, Schoorlemmer 2012, Pfaff 2015). Although these approaches do assume somewhat different inventories of projections within the TNP, there is sufficient agreement among the authors to focus the detailed discussion on Julien (2005) as a representative of this family of approaches.

Similar to Sigurðsson, Julien assumes that PPs are complements of N and possessors are specifiers of N. The NP is dominated by a head Num(ber), which serves as a locus of inflection. NumP is in turn dominated by a head *n*, which licenses arguments, encodes specificity and is the source of the bound article in Icelandic and double definiteness (DD) in Norwegian, Swedish and Faroese.<sup>13</sup> N undergoes subsequent head movements to *n*.

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<sup>13</sup>This node should not be confused with the category node *n* in the DM tradition.

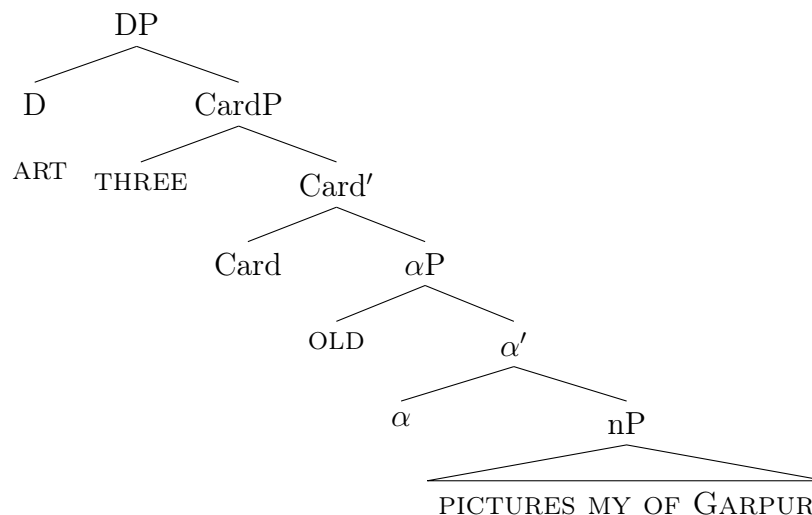
- (65) a. mynd mín af Garpi  
           *picture my of Garpur*  
           my picture of Garpur  
       b.



Following the work of Cinque (1994, 1999), Julien assumes that adjectives, when present, are specifiers of iterative  $\alpha$  projections that dominate nP.  $\alpha$ s are ordered according to their feature content and select for particular semantic classes of adjectives, thus achieving the ordering effects observed with adjectives (cf. Scott 2002). Numerals and other weak quantifiers are specifiers of a Card(inal) head, dominating  $\alpha$ P/nP. Closing off the TNP is D, which is the source of the free article in DD. The structure of a pattern II DP would then be as in (66).

- (66) a. hinar þrjár gömlu myndir mínar af Garpi  
 ART three old pictures my of Garpur  
 my three old pictures of Garpur

b.

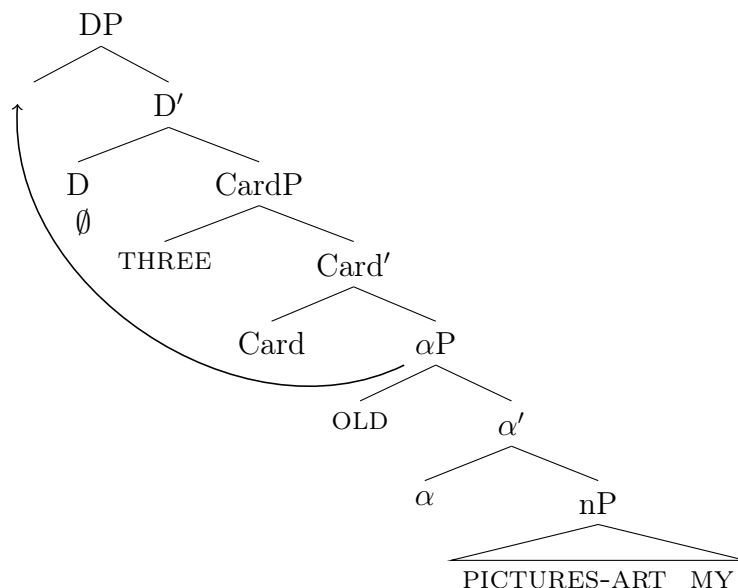


In the absence of  $\alpha$ P and CardP, nP undergoes movement to Spec-DP in all of the North Germanic languages. Icelandic is assumed to differ from the other North Germanic languages in two ways, on the one hand, Card does not block movement to Spec-DP, and on the other hand, when  $\alpha$ P is present,  $\alpha$ P is targeted for movement to Spec-DP. Pattern I is hence derived by the movement of  $\alpha$ P to Spec-DP. Note that Julien assumes that in this case, the article is a realization of n and not D.<sup>14</sup>

<sup>14</sup>Note that I am setting aside the PP for the time being. I will return to it below.

- (67) a. gömlu myndir-nar mínar þrjár  
*old.WK pictures-ART my three*  
 ‘My three old pictures’

b.



As was the case with most previous approaches, this proposal was made under the assumption that pattern III did not exist, hence this approach has the desirable effect that the adjective, noun and pronominal possessor are fronted in a single movement operation. The existence of pattern III can be accommodated by e.g. Pfaff (2007)’s proposal that nP can in some cases be targeted for movement to Spec-DP.

This line of approaches appears to also be supported by the relation between multiple adjectives in the three patterns (see Pfaff 2015, Ingason, to appear), namely that in case of mixed pattern I and III, the stranded adjective scopes over the fronted one.

- (68) a. hinn ótrúlegi rauði bíll  
*ART incredible red car*  
 ‘the incredible red car’

*Pattern II*

- b. rauði bíllinn ótrúlegi  
*red car.ART incredible*

*Pattern I&III*

I will return to this issue below.

A challenge arises when the full postnominal sphere is taken into consideration. First, although pronominal possessors are fronted along with the noun as in (68), that is not the case with non-pronominal possessors.

- (69) a. \*myndir-nar (hennar) Astridar þrjár  
           *pictures-ART PROP Astrid.GEN three*  
           ‘Astrid’s three pictures’
- b. myndir-nar þrjár hennar Astridar  
      *pictures-ART three PROP Astrid.GEN*

This approach also erroneously predicts that postnominal PPs are fronted along with the noun.

- (70) a. \*myndir-nar af Dorian Gray þrjár  
           *pictures-ART of Dorian Gray three*  
           ‘the three pictures of Dorian Gray’
- b. myndir-nar þrjár af Dorian Gray  
      *pictures-ART three of Dorian Gray*

This issue has either not been addressed (Vangsnes 1999, Schoorlemmer 2012) or postnominal material assumed to undergo DP-internal extraposition (Julien 2002, Pfaff 2009, Norris 2011a, Ingason 2016). Ingason (2016) mentions the following example in support of extraposition involving pattern II.

- (71) a. [ bláa myndin [ af honum ] ] glæsilega  
           *blue picture.ART of him elegant*
- b. [ bláa myndin ] glæsilega [ af honum ]  
      *blue picture.ART elegant of him*  
      ‘the elegant blue picture of him’ [Ingason, to appear]

In case of (71b), Ingason argues that the PP has undergone heavy shift, since the position of the PP in (71a) is not available for heavy PPs, as is shown in (72).

- (72) a. \*myndin [ af öllum nemendunum í bekknum ] *glæsilega*  
*picture.ART of all students.ART in class.ART elegant*
- b. myndin *glæsilega* [ af öllum nemendunum í bekknum ]  
*picture.ART elegant of all students.ART in class.ART*

Several problems arise with this analysis. First is the lack of optionality of the heavy shift in case of (72), which is in contrast with heavy shift in other domains as in (73) (Ross 1967). The same holds in Icelandic, (74).

- (73) a. Harry put [ the new Ming vase he'd bought ] on the table.  
 b. Harry put \_ on the table [ the new Ming vase he'd bought ].
- [adapted from Pesetsky 1995:249]

- (74) a. Jónas setti [ nýja vasann sem hann keypti ] á borðið  
*Jónas put new vase.ART that he bought on table.ART*
- b. Jónas setti \_ á borðið [ nýja vasann sem hann keypti ]  
*Jónas put on table.ART new vase.ART that he bought*

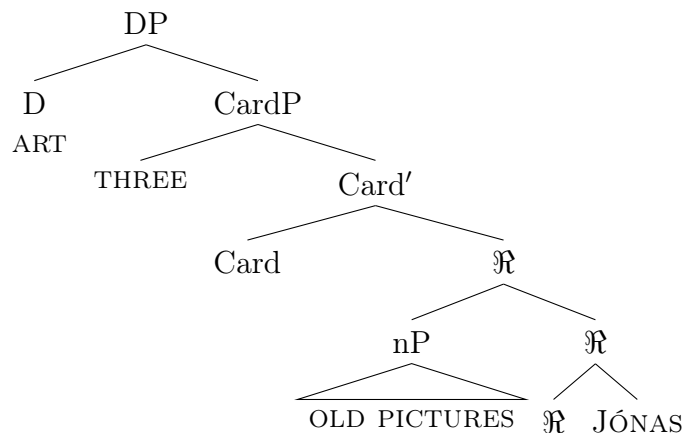
Second, the position of the PP in (71a) does not seem to be available to PPs containing proper nouns, despite the two PPs being of arguably similar complexity (Déchaine & Wiltschko see e.g. 2002 and references cited therein).

- (75) a. \*[ bláa myndin [ af Jóni ] ] *glæsilega*  
*blue picture.ART of Jón elegant*
- b. [ bláa myndin ] *glæsilega* [ af Jóni ]  
*blue picture.ART elegant of Jón*  
 ‘the elegant blue picture of him’

(Pfaff 2015:236ff) proposed a novel solution to this problem, drawing on Adger (2013). He proposes that possessors are complements of  $\mathfrak{R}$  ( $\mathfrak{P}$  in Adger’s notation), a functional head that relates a nominal projection and a possessor. The lower

levels of the TNP are then specifiers of  $\mathfrak{R}$ .<sup>15</sup> A modified version of (74) with a non-pronominal possessor would be along the lines of the following.<sup>16</sup>

(76)



This ameliorates the issue of stranding possessors. Although Pfaff does not discuss PPs, they could presumably be handled in the same way (cf. Adger 2013), i.e. PPs are complements of  $\mathfrak{R}$  which takes an nP or a second  $\mathfrak{R}$  as a specifier. Unfortunately, that leads to a paradox with regards to the linear and structural relation between the possessor and PPs. As mentioned in the previous subsection (examples repeated below), a possessor can bind a variable within PPs, but not vice versa.

- (77) a. mynd hvers lækni-s af hundinum sínum  
*picture each doctor-GEN of dog.ARTself's*  
 'each doctor's picture of his dog'
- b. \*mynd læknisins síns af hverjum hundi  
*picture doctor.ART-GEN self's of each dog*  
 'each dog's picture belonging to their doctor'

This indicates that possessors asymmetrically C-command PPs. To achieve that under the proposal at hand would require  $\mathfrak{R}$  containing the possessor to be placed

<sup>15</sup>Pfaff (2015) also argues that stranded adjectives are merged above  $\mathfrak{R}$ . Ingason (to appear) argues for a similar approach. See below for further discussion.

<sup>16</sup>Note that I am otherwise using Julien's labels for the sake of clarity.

structurally higher than the  $\Re$  containing the PP. This would however yield the wrong linear order of the two elements.

- (78) a. \*myndin af Dorian Gray hennar Astridar  
*picture.ART of Dorian Gray PROP Astrid*  
 b. myndin hennar Astridar af Dorian Gray  
*picture.ART PROP Astrid of Dorian Gray*  
 ‘Astrid’s picture of Dorian Gray’

Hence, although this approach allows for stranding the postnominal elements, ad hoc extraposition of the elements is still needed to account for both the relationship between elements in terms of linear order as well as structure.

Just as Sigurðsson’s approach above, this approach makes the prediction that ellipsis can target the adjective and noun to the exclusion of the possessor and PP. This prediction is, for the most part, not borne out (I will discuss NP-internal ellipsis in further detail below).

- (79) Ottó átti alltaf erfitt með [furðulegar kenningar Gísla um  
*Ottó had always difficult with bizzare theories Gísli.GEN about*  
*setningafræði] en var alltaf glaður að sjá...*  
*syntax but was always glad to see*  
 ‘Ottó always had some difficulties with Gísli’s bizzare theories about syntax,  
 but was always glad to see...’  
 \*furðulegar kenningar Astridar [um orðhlutafræði]  
*bizzare theories Astrid.GEN about morphology*  
 ‘Astrid’s bizzare theories on morphology’

To account for this would then require forgoing structural identity in ellipsis accounts, which, although not infallible, does appear to be independently necessary (see e.g. Gengel 2007, Merchant to appear).

To sum up this section, although the phrasal movement accounts have proven very successful in handling the prenominal sphere, they come up short when it comes

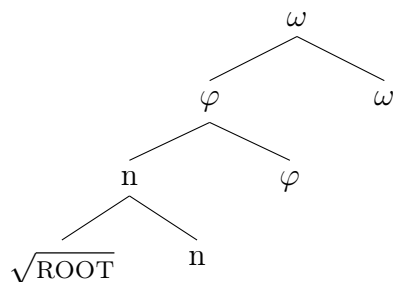


to the postnominal sphere. Ellipsis points to the noun, possessor and PP forming a constituent, and binding points to the possessor c-commanding the PP. In order to maintain such an account, it then becomes necessary to assume an otherwise unmotivated extraposition of the postnominal elements.

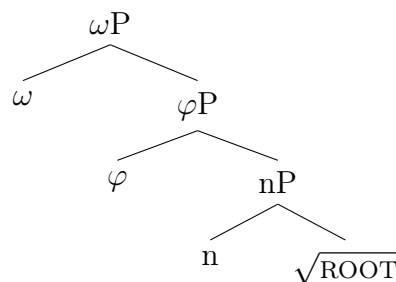
### 4.3 Painting the picture of Dorian Gray — The structure of the NP

Recall that in Chapter 2, we established a basic structure of a noun, and, given the assumptions made in this dissertation regarding the architecture of grammar, I take the structure of the noun to imply a mirror image phrasal counterpart (Baker 1985). Hence the structure of the noun in (80) is taken to imply the structure in (81). I then assume that the noun is composed through subsequent head movements to  $\omega$ .

(80)



(81)



As above, I follow e.g. Marantz (1997, 2007), Harley (2005, 2009), Embick (2010) and others, in assuming that roots are acategorical and receive their category via merger with a category node. Dominating the category node is a head  $\varphi$ , that serves as a locus of inflection (drawing on Johnson 1990, Halle & Marantz 1993, 1994, Bobaljik 1995, Marantz 1997, 2001, 2007, Harley 2009, Embick 2010).<sup>17</sup> This head

<sup>17</sup>In Icelandic gender, number and case are always realized as a single exponent. Note, however, that even though I assume only a single node here for the realization of inflection, it is not necessarily the case that these features are never segmentable. Dissociative morphemes can be attached to the node, but fusion/bundling may optionally apply.

corresponds with e.g. Julien’s (2005) *Num* or Faarlund’s (2009) *Infl*. Dominating  $\varphi$  is a head  $\omega$ , which encodes referentiality and licenses arguments (cf. Vangsnes 1999, Julien 2005, Harðarson 2016 and others). The head  $\omega$  corresponds e.g. to the heads  $n$  and  $\alpha$  in Julien’s (2005) proposal, Vangsnes’ (1999) *Dx* and Pfaff’s (2015) *ix*. I assume that argument licencing is accomplished via *Reverse Agree* Wurmbrand (2010, 2012b,c,a, 2013, 2014b,a, 2017). Under this assumption, any DP-internal arguments must be c-commanded by and accessible to  $\omega$  at some point in the derivation.

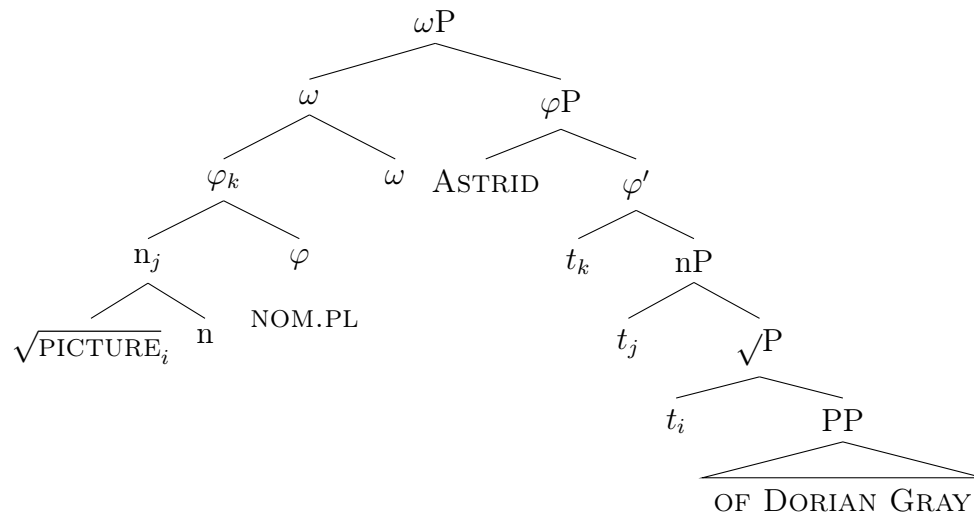
The question is then where the modifiers fit into the structure. Starting with the postnominal sphere, As we saw above, binding indicates that a possessor c-commands certain PPs. Both elements appear postnominally, and given the assumption that the head movement is to  $\omega$ , the elements could potentially be placed at any point below  $\omega$ . For the time being I will assume that possessors are placed in Spec- $\varphi$ P. As we saw above, there are multiple possible positions for PPs in the structure. I assume that some PPs are complements of the root, whereas others may be specifiers to the root or right-adjoined at various points in the structure.<sup>18</sup> The structure of the NP in (82a) is as in (82b).

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<sup>18</sup>This will be further motivated below.

- (82) a. myndir Astridar af Dorian Gray  
*pictures Astrid.GEN of Dorian Gray*  
 Astrid's picture of Dorian Gray

b.



Unlike English, indefinite possessive constructions in Icelandic seem to be necessarily specific which is evidenced by them being excluded from existential constructions, whether POSS denotes a possessor or the author of the picture (see Jónsson 2000 on the interplay of definiteness and specificity in existential constructions in Icelandic).

- (83) \*Það eru frægar myndir Astridar uppi á vegg.  
*it is famous pictures Astrid.GEN up on wall*  
 There are famous pictures of Astrid's on the wall.

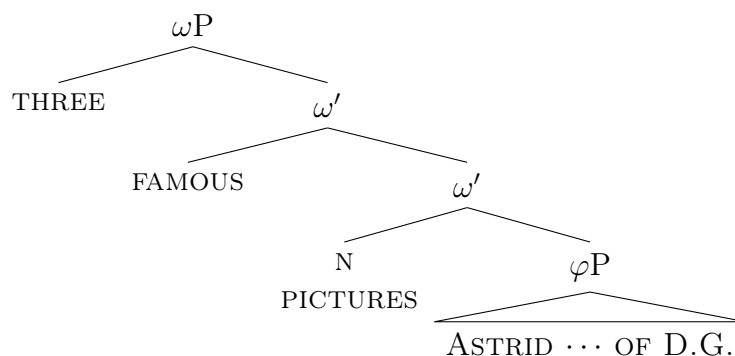
That is not the case with PPs, whether that PP denotes the subject matter, (84a), or the author, (84b).

- (84) a. Það eru frægar myndir af Dorian Gray uppi á vegg.  
*it is famous pictures of Dorian Gray up on wall*  
 'There are famous pictures of Dorian Gray on the wall.'
- b. Það eru frægar myndir eftir Astrid uppi á vegg.  
*it is famous pictures by Astrid up on wall*  
 'There are famous pictures by Astrid on the wall.'

Given the assumption that the formation of the noun involves movement to  $\omega$  and

the fact that Icelandic does not have postnominal adjectives, I assume that all prenominal modifiers are placed in Spec- $\omega$ P. Specifically, I assume that  $\omega^\circ$  hosts multiple specifiers (cf. Chomsky 1995b, 2005, Lahne 2009). This is illustrated in the following example. Note that the complex head  $\omega$  has been collapsed into N.

- (85) a. þrjár frægar myndir Astridar af Dorian Gray  
           *three famous pictures Astrid.GEN of Dorian Gray*  
           Astrid's three famous pictures of Dorian Gray  
       b.



The order of prenominal modifiers is fairly rigid. Barring a very strong specific context, the order is usually along the lines described by Scott (2002). I furthermore assume that this order is determined by semantics rather than syntax (cf. Bobaljik 1999a, Ernst 2002, Ticio 2003, Bošković 2009).

- (86) *Partial hierarchy of prenominal modifiers* [Scott 2002:114]

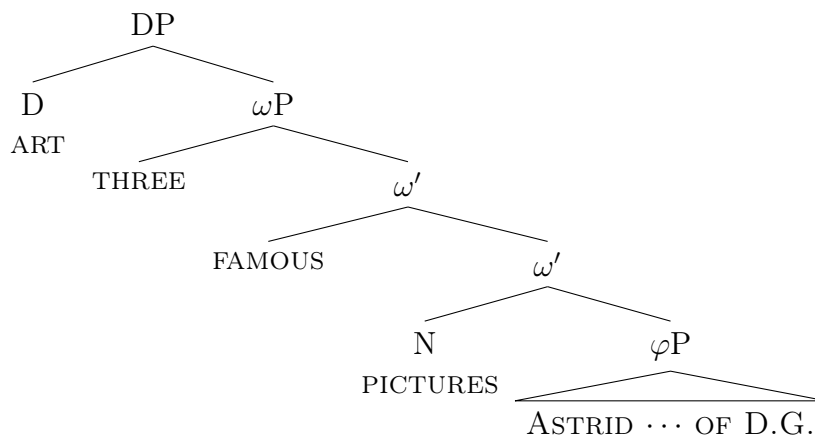
CARDINAL NUMBER > SIZE > COLOR

- (87) a. þrjár stórar rauðar blöðrur    c. #rauðar þrjár stórar blöðrur  
           *three big red balloons*        *red three big balloons*  
       b. #þrjár rauðar stórar blöðrur    d. \*stórar rauðar þrjár blöðrur  
           *three red big balloons*        *big red three balloons*

The free article is assumed to be a realization of D (e.g. Sigurðsson 1993, Delsing 1993b, Julien 2005, Pfaff 2007, 2009). The structure of a Pattern II DP is then be as in (88).

- (88) a. hinar þrjár frægu myndir (hennar) Astridar af Dorian Gray  
*the three famous pictures* PROP *Astrid.GEN of Dorian Gray*  
 Astrid's three famous pictures of Dorian Gray

b.



### 4.3.1 Are two heads really better than one?

Before moving on, it is worth addressing the question of what exactly the bound and free articles in Icelandic are a realization of. Various approaches have argued that the two are realizations of different heads, usually with motivation from double definiteness in Norwegian, Swedish and Faroese (e.g. Rögnvaldsson 1990, Árnason & Pind 2005, Árnason 2011, Norris et al. 2014, Vangsnes 1999, Julien 2005, Lohrmann 2010, 2011).

As Julien (2005:38–39) points out, the bound article in Norwegian, Swedish and Faroese appears to encode specificity rather than definiteness. This is exemplified by the following contrasts in Norwegian. In case of (89a), the postnominal article is absent and the DP does not refer to a particular set of brutes. In (89b), however, the postnominal article is present, and the DP must refer to a particular set of brutes (see also Delsing 1993b:118).

- (89) a. Dei oppfører seg som dei verste bøllar  
*they behave REFL as ART worst brutes*  
 ‘They behave like the worst brutes (whoever those are).’
- b. Dei oppfører seg som dei verste bølla-ne  
*they behave REFL as ART worst brutes-ART*  
 ‘They behave like the worst brutes (and we know who those are)’

[Norwegian, Julien 2005:35]

In case of double definiteness, Julien argued that the free article is a realization of D, whereas the bound article is a realization of *n* (or  $\omega$  under the current approach).

In double definitness languages, the prenominal article is not overt in vocatives whereas the postnominal is (Julien 2005:31–32).<sup>19</sup>

- (90) Veit du ikkje det (\*den) stor-e jent-a!  
*know you not that ART big-WEAK girl-ART*  
 ‘Don’t you know that, you big girl’ [Norwegian, Julien 2005:32]

Danish does not mark any definiteness in vocatives, hence the bound article in Danish, Julien (2005:66) argues, appears to be a realization of D rather than *n*. Note that the adjective has a weak suffix despite the absence of an overt definiteness marker.

- (91) Ved du ikke det, stor-e pige!  
*know you not that big-WEAK girl*  
 [Danish, Julien 2005:66]

As for Icelandic, Julien (2005:57) argued that single definiteness arises from Icelandic only realizing D (in pattern II) or  $\omega$  (in pattern I), never both simultaneously. This appears to be borne out to a certain extent, as is illustrated below, where Pattern

<sup>19</sup>The North Germanic languages all preserve the weak/strong distinction in adjective inflection, where, roughly speaking, the weak paradigms occur in a definite context and the strong paradigm occurs in an indefinite context. Note that this is a simplified description of the pattern, but one that suffices for the purposes of this paper. See e.g. Pfaff (2015) for a more nuanced discussion of the distribution for Icelandic.

II yields a non-specific reading and Pattern I yields a specific reading.

- (92) a. Þeir höguðu sér eins og hinar verstu bullur.  
*they behaved REFL like and ART worst hooligans*  
 ‘They behaved like the worst hooligans.’ (nonspecific)
- b. Þeir höguðu sér eins og verstu bullurnar.  
*they behaved REFL like and worst hooligans.ART*  
 ‘They behaved like the worst hooligans.’ (specific/?\*nonspecific)

That is, however not always the case, as in (93), where pattern I is ambiguous between a specific and non-specific reading (see also Lohrmann 2010:150–153).

- (93) Verstu bullur-nar reynast alltaf vera innanbæjarmenn.  
*worst hooligans-ART turn.out always be townspeople*  
 ‘The worst hooligans always turn out to be townspeople.’ (specific/nonspecific)

Evidence from vocatives, furthermore points to Icelandic only realizing D. In this case Icelandic patterns with Danish in neither realizing the free nor bound form of the article:

- (94) Veistu það ekki, stór-a stelpa!  
*know.you that not big-WEAK girl*

It is also worth noting that in Icelandic, the bound and free articles are (near) identical in form (as in Danish).

(95) The free article

|          |     | MASCULINE | FEMININE         | NEUTER           |
|----------|-----|-----------|------------------|------------------|
| SINGULAR | NOM | hin-n     | hin- $\emptyset$ | hi- $\delta$     |
|          | ACC | hin-n     | hin-a            | hin-u            |
|          | DAT | hin-um    | hin-ni           | hin-u            |
|          | GEN | hin-s     | hin-nar          | hin-s            |
| PLURAL   | NOM | hin-ir    | hin-ar           | hin- $\emptyset$ |
|          | ACC | hin-na    | hin-ar           | hin- $\emptyset$ |
|          | DAT | hin-um    | hin-um           | hin-um           |
|          | GEN | hin-na    | hin-na           | hin-na           |

(96) The bound article

|          |     | MASCULINE | FEMININE         | NEUTER          |
|----------|-----|-----------|------------------|-----------------|
| SINGULAR | NOM | -in-n     | -in- $\emptyset$ | -i- $\delta$    |
|          | ACC | -in-n     | -in-a            | -in-u           |
|          | DAT | -in-um    | -in-ni           | -in-u           |
|          | GEN | -in-s     | -in-nar          | -in-s           |
| PLURAL   | NOM | n-ir      | n-ar             | in- $\emptyset$ |
|          | ACC | n-a       | n-ar             | in- $\emptyset$ |
|          | DAT | n-um      | n-um             | n-um            |
|          | GEN | n-na      | n-na             | n-na            |

This is not necessarily the case in e.g. Norwegian:

(97) Norwegian (Julien 2005:26–27)

- |                                              |                                                                         |
|----------------------------------------------|-------------------------------------------------------------------------|
| a. skjort-a<br><i>shirt-DEF</i><br>the shirt | b. den gule skjort-a<br><i>the yellow shirt-DEF</i><br>the yellow shirt |
|----------------------------------------------|-------------------------------------------------------------------------|

Hence it seems that the bound and free articles in Icelandic, under Julien's



rationale, appear to be realization of D. Hence the answer to the question posited in the section header is, as has been claimed in other domains, “not always” (Bobaljik & Þráinsson 1998).

### 4.3.2 Different orders — different readings

As mentioned above, the patterns observed in the definite DP are not semantically equivalent, as was most recently pointed out by e.g. Pfaff (2009, 2014) and Ingason 2016 (to appear). In this subsection, I will review the data discussed by Pfaff and Ingason and the differences between the three patterns.

First, Pfaff (2015:100–104) distinguishes between two different prototypical uses of pattern II. On the one hand he identifies concepts, i.e. abstract notions or generic phenomena. Under this use, the DP does not refer to an individual, but only an abstract concept or kind. He gives examples such as the following.

- |      |    |                                                                                        |    |                                                                                   |
|------|----|----------------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------|
| (98) | a. | hinn fullkomni glæpur<br>ART <i>perfect crime</i><br>‘the perfect crime’               | c. | hinn þögli meirihluti<br>ART <i>silent majority</i><br>‘the silent majority’      |
|      | b. | hin hefðbundna fjölskylda<br>ART <i>traditional family</i><br>‘the traditional family’ | d. | hin vísindalega aðferð<br>ART <i>scientific method</i><br>‘the scientific method’ |

Pattern I TNPs can to a certain extent also denote concepts as in the following, although to a differing degree of acceptability.

- |      |    |                                                                                       |    |                                                                                  |
|------|----|---------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------|
| (99) | a. | *fullkomni glæpur-inn<br><i>perfect crime-ART</i><br>‘the perfect crime’              | c. | þögli meirihluti-nn<br><i>silent majority-ART</i><br>‘the silent majority’       |
|      | b. | ?hefðbundna fjölskylda-n<br><i>traditional family-ART</i><br>‘the traditional family’ | d. | vísindalega aðferð-in<br><i>scientific method-ART</i><br>‘the scientific method’ |

Pattern III, on the other hand, categorically cannot:

- (100) a. \*glæpurinn fullkomni c. \*meirihlutinn þögli  
*crime.ART perfect majority.ART silent*  
 b. \*fjölskyldan hefðbundna d. \*aðferðin vísindalega  
*family.ART traditional method.ART scientific*

Second, Pfaff (2015:101ff) identifies a use of pattern II as non-referring definite descriptions, which he refers to as *epithets*. These DPs do not identify a referent themselves. These are further divisible into *attributive epithets*, which add a description to a given referent, (101) and *anaphoric epithets*, denoting a known property of a known referent, (102). For both of these uses, Pattern III can be alternatively used, but Pattern I is excluded as *known actor* seems to refer to someone other than *Clint Eastwood*.

- (101) a. \*þekkti leikarinn Clint Eastwood  
known actor.ART C. E.  
b. hinn þekkti leikari Clint Eastwood  
ART known actor C. E.  
c. leikarinn þekkti Clint Eastwood  
actor.ART known C. E.  
'the famous actor Clint Eastwood'

- (102) Noam Chomsky var fenginn í viðtal við MBL.  
*N. C. was gotten in interview with MBL (an Icelandic newspaper)*
- a. #Frægi málfræðingur-inn...  
*famous linguist-ART*
- b. Hinn frægi málfræðingur...  
*ARTfamous linguist*
- c. Málfræðingur-inn frægi...  
*linguist-ART famous*  
 ‘The famous linguist’  
 (... sagðist vera mjög ánægður með nýjustu bókina sína)

(... said he was very pleased with his latest book)  
[Pfaff 2015:102]

For the anaphoric epithets, it is crucial that a referent is already present in the discourse context, similar to unstressed pronouns. Following (Delsing 1993b:121)’s observation that deictic reference is impossible for Pattern II, Pfaff suggests that Pattern I is infelicitous in these constructions because it has deictic reference and hence picks out another discourse referent in (101) and (102).

It is not the case, when referring to individuals, that Patterns II and III are synonymous. Pfaff (2015:103) provides the following context and example distinguishing between Patterns II and III

- (103) *There is a Big Conference going on. Many **famous** experts are present and are expected to give talks: several **famous** mathematicians, one **famous** psychologist, many **famous** computer specialists .... and one **famous** linguist.*

- |                                                    |                                                 |
|----------------------------------------------------|-------------------------------------------------|
| a. #frægi málfræðingurinn<br>famous linguist.ART   | c. málfræðingurinn frægi<br>linguist.ART famous |
| b. #hinn frægi málfræðingur<br>ART famous linguist | d. málfræðingurinn<br>linguist.ART              |

(... was the first one to give a talk)

In this context, Pfaff argues, pattern I is infelicitous, since it implies that there are more than one linguist involved, i.e. a non-famous one. Pattern II is infelicitous since it is not linked with a unique salient referent and cannot pick one out by itself. In case of pattern III, the DP is deictic but unlike pattern I, the information contributed by the adjective is backgrounded, hence the referent is solely identified as a linguist. An unmodified definite TNP is hence also compatible with this context (as well as the others above). If that is the case, however, it is not necessary that Pattern I is infelicitous in (102) because of its inability of having anaphoric reference. Pattern I

is ruled out simply because the context contains only a single referent identifiable as a linguist and this linguist happens to be famous. This is compatible with Patterns II and III. Pattern I, however, presupposes that the discourse context contains other salient referents identifiable as linguists, but only one of them is famous.

It is possible Pattern I DPs cannot be used as anaphoric epithets, however as in the example below.

- (104) Pabbi kom í heimsókn í gær og heldurðu að gamli  
*dad came in visit in yesterday and think.you that old.WK*  
 karlinn hafi ekki bara stoppað í vettlingana mína á meðan.  
*man.ART have not just darned in mittens.ART my on while*  
 ‘Dad came to visit yesterday, and don’t you know it, he just darned my  
 mittens while he was there.’

In this case, both the adjective and the noun serve to identify a referent.

Ingason (2016) proposes a different dichotomy in terms of weak and strong articles, following Schwarz (2009); Arkoh & Matthewson (2013) and Simonenko (2013). Under his analysis, the free article is classified as weak article and hence denotes uniqueness. The bound article and demonstratives are classified as strong and denote anaphoricity. This distinction is exemplified by the following example.

- (105) (Context: First mention of the World Wide Web)
- Tim Berners Lee kynnti heiminn fyrir [hinum/#þessum ótrúlega  
*T. B. L. introduced world.ART to ART /#this amazing*  
*veraldarvef].*  
*world.wide.web*  
 ‘T. B. L. introduced the world to the amazing world wide web.’

[Ingason 2016:12]

The DP above is the first mention of a globally unique noun and in this context, Pattern II is felicitous, but not a demonstrative. This pattern is then reversed in

the following sentence when, e.g., uttered in response to (105).

- (106) Þú veist svo mikið um [#hinn/þennan ótrúlega veraldarvef].  
*you know so much about #ART /this amazing world.wide.web*  
 ‘You know so much about this amazing world wide web.’  
 [Ingason 2016:12]

If the noun is unmodified, the definite article is felicitous in (106), however, as mentioned above, in these cases only the bound article is possible.

- (107) Þú veist svo mikið um [veraldarvef-inn].  
*you know so much about world.wide.web-ART*  
 ‘You know so much about the world wide web.’  
 [Ingason 2016:12]

However, one missing part from the discussion in Ingason (2016) is that Pattern III is also felicitous in (105) but not in (107).

- (108) (Context: First mention of the World Wide Web)
- Tim Berners Lee kynnti heiminn fyrir [veraldarvef-num  
*T. B. L. introduced world.ART to world.wide.web-ART*  
 ótrúlega].  
*amazing*  
 ‘T. B. L. introduced the world to the amazing world wide web.’

- (109) (Context: In response to (108) or (105))
- #Þú veist svo mikið um [veraldarvef-inn ótrúlega].  
*you know so much about world.wide.web-ART amazing*  
 ‘You know so much about the world wide web.’

Setting aside DPs denoting kinds, when we put the two datasets together, what emerges is not a difference in terms of possibility of anaphoric reference. We saw with

Pfaff's discussion of the non-referring definite descriptions that Pattern II can have anaphoric reference and we saw with Ingason's data that Pattern II can establish a discourse referent. Hence, both bound and free articles can be used anaphorically. One noticeable difference between the two uses discussed by Pfaff and Ingason, respectively is that the non-referring definite descriptions discussed by Pfaff are not identical to the DP that introduces the discourse referent. Their distribution appears to be more similar to that of a pronoun. Compare the (110) to (102) above.

- (110) Noam Chomsky var fenginn í viðtal við MBL.  
 They got N. C. for an interview with MBL (an Icelandic newspaper)  
***hann** sagðist vera mjög ánægður með nýjustu bókina sína*  
*he said be very happy with newest book.ART REFL*  
 'he said he was very pleased with his latest book.'

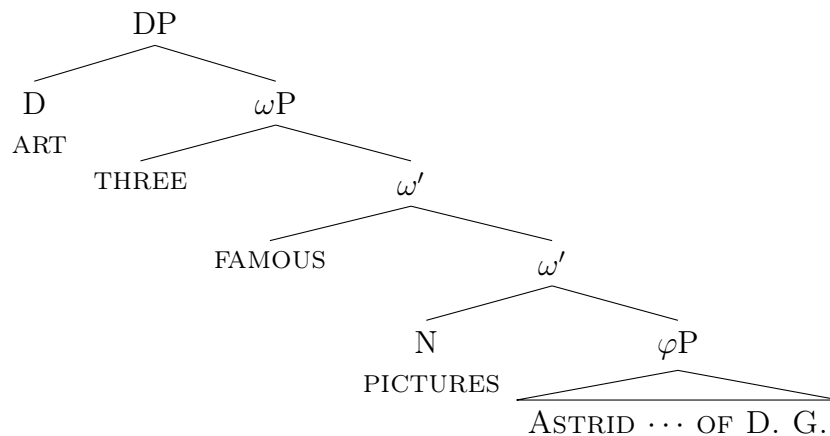
The anaphoric DPs discussed by Ingason on the other hand, all contain (at least) the same noun as their antecedent. Furthermore, in the context provided by Pfaff, the referent is the discourse topic, whereas the infelicitous anaphoric use of Pattern II discussed by Ingason appear to involve shifting the topic of the discourse. An extensive study of the difference between discourse environment allowing for the anaphoric use of definite DPs, however, falls outside the scope of this dissertation, so I'll set that aside for further research.

Now the question is: what do we have left? What could possibly distinguish between these three patterns? First, there is the contribution of the adjective to the uniqueness presupposition, which separates Pattern I from Patterns II and III. Second, as mentioned above, Patterns I and III can refer deictically, whereas Pattern II cannot.

### 4.3.3 Deriving Patterns I and III

As mentioned above, I take patterns I and III to be derived from pattern II. Also, as discussed in more detail above the hierarchical configuration within Pattern II is the following (example repeated from above):

- (111) a. hinar þrjár frægu myndir (hennar) Astridar af Dorian Gray  
           *the three famous pictures* PROP *Astrid.GEN of Dorian Gray*  
           Astrid's three famous pictures of Dorian Gray  
       b.

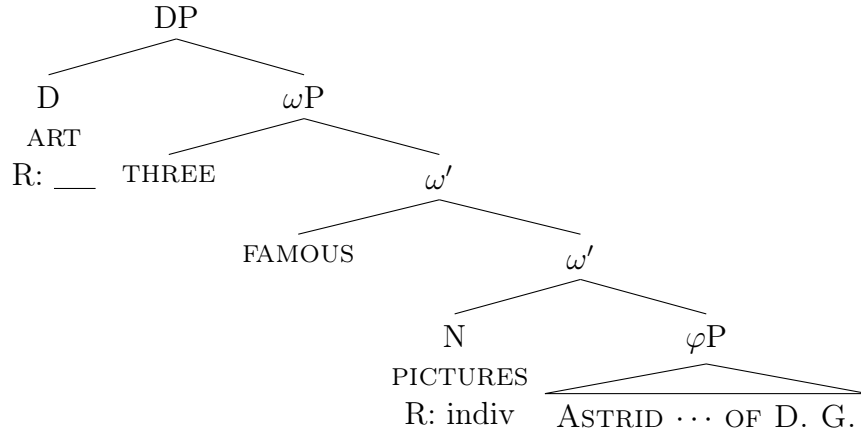


Given the similarities between the forms of the bound and free article and their similarities in meaning, I assume that both articles are realizations of D, following e.g. Sigurðsson (1993), Indriðason (1994), Pfaff (2009, 2007), Ingason (2016).

Given the existence of pattern III, and in an effort to avoid assuming ad hoc movement operations, I propose to return to head movement accounts for patterns I and III.

I propose that the movement of N to D is triggered by a conspiracy of factors, namely *deixis* and *individuation*. I assume that both  $\omega$  and D carry a feature R. In case of deictic D, R is unvalued.

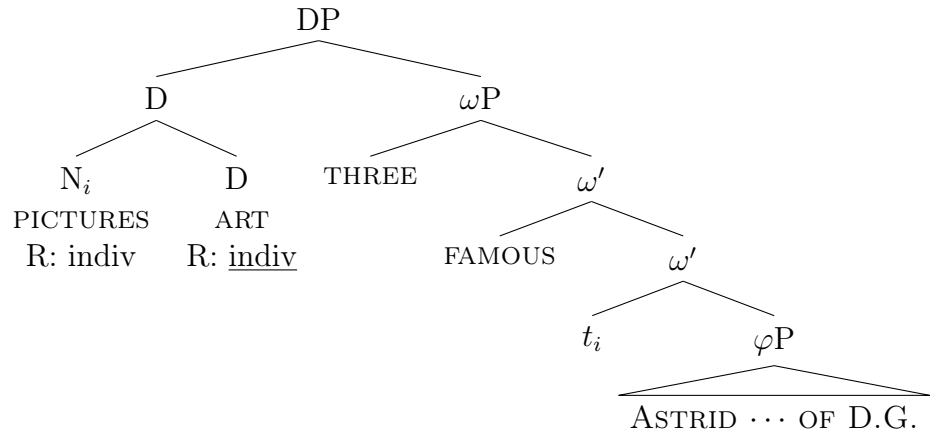
(112)



The unvalued R feature receives its value from Nonce Nhas moved to D.<sup>20</sup> As stated above, I assume *Reverse Agree* (Wurmbrand: op. cit.), i.e. that feature valuation proceeds downwards where the goal c-commands the probe.<sup>21</sup> The structure of a Pattern III DP is then as follows:

- (113) a. myndir-nar þrjár frægu (hennar) Astridar af Dorian Gray  
 pictures-ART three famous PROP Astrid.GEN of Dorian Gray  
 'Astrid's three famous pictures of Dorian Gray'

b.



<sup>20</sup>I am setting aside Pattern I DPs denoting abstract concepts or kinds.

<sup>21</sup>Although Wurmbrand does not specifically discuss head movement, the question is still whether head movement and head adjunction is subject to the same requirement. If that is indeed so, one option might be to adopt Matushansky (2006)'s formulation of head movement, in which the moved head moves to the specifier of the destination head and then the two undergo morphological merger, forming a complex head. This would however nullify the head movement constraint assumed here, so I will set that issue aside for now.



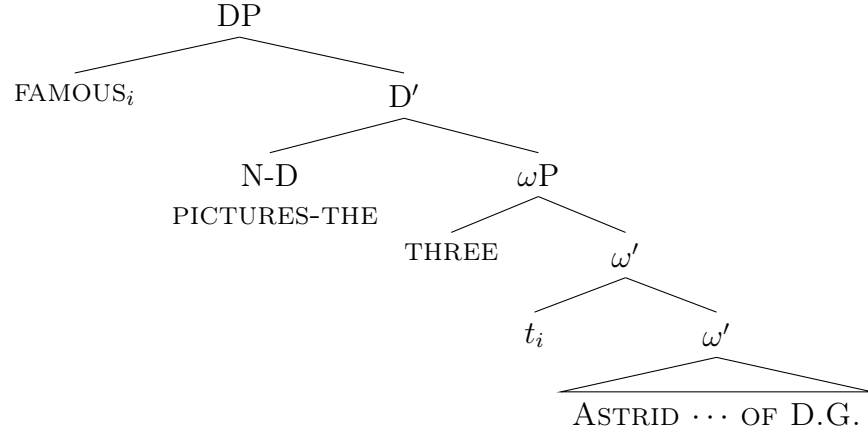
This correctly accounts for the postnominal sphere without having to resort to displacement of the postnominal material.

As mentioned in the previous subsection, the information contributed by the adjective in patterns II and III DPs is backgrounded (roughly speaking evaluative or non-restrictive). Hence, in these DPs, it is the noun alone that “uniquely satisfies the descriptive content of the [DP]” (Roberts 2003:289), i.e. the unique referent is picked out by the noun and not a combination of the noun and adjective. In other words, in a context where (113) is appropriate might be e.g. a small exhibition of the works of Astrid. She only made three pictures and they were all of Dorian Gray and all of them became famous.

In case of pattern I, the adjective does contribute to the uniqueness presupposition, i.e. in the following example, the presupposition is that there are only three pictures of Dorian Gray, by or owned by Astrid, that are famous. There may be other pictures, but they cannot have the following properties at the same time: being famous, being owned by Astrid, and being of Dorian Gray. Hence in order for the adjective to do so, I propose that the adjective must move to a focus position for its descriptive content to contribute to the uniqueness presupposition. In other words, the adjective is brought to the forefront by focus-movement to spec-DP (see also Ticio 2003, Bastos-Gee 2011 for analyses in this vein). Furthermore, I assume that the properties of D that attract a focalized adjective are dependent on the properties that attract N to D.

- (114) a. frægu myndir-nar þrjár hennar Astridar af Dorian Gray  
*famous pictures-ART three PROP Astrid of Dorian Gray*  
 ‘Astrid’s three famous pictures of Dorian Gray’

b.



Under the assumption that multiple specifiers are equidistant to the target position (Chomsky 1995b, 2000), targeting a lower element over the higher one should not result in a *Relativized Minimality* (RM) violation (Rizzi 1990). Alternatively, this could be framed in terms of the *Phase Impenetrability Condition* (PIC) Chomsky (2001, 2005) following Bošković (2016), where in the case of multiple elements at the edge of a phase, only the outermost element at the edge can escape. This effect should then only arise when  $\omega$  is a phase. In the presence of D,  $\omega$  is not a phase, and the adjectives would hence not be subject to this formulation of the PIC. Either of these approaches are further supported by *mixed* patterns, where either adjective can be fronted, regardless of their preferred order relative to each other.

- (115) a. stóra blaðra-n rauða      b. rauða blaðra-n stóra  
*big balloon-ART red                  red balloon-ART big*

Another option would be to assume a recursive  $\omega^\circ$ , each only taking a single specifier (following e.g. Cinque 2005, Julien 2005). Since only adjectives move to this position, D is presumably targeting two features, [Foc] and [Adj]. Hence this would lead to a RM violation in case of examples such as (115), since the two adjectives are no longer equidistant from the target position. Given RM, we would furthermore

expect the order of the adjectives to be reversed in the prearticular position when both move. That is not the case.

- (116) a. stóra rauða blaðra-n  
           *big red balloon-ART*
- b. #rauða stóra blaðra-n  
           *red big balloon-ART*

Furthermore there is the question of how high the “noun” moves. As stated above, it is assumed that the noun moves to  $\omega^\circ$ . Under that assumption, a recursive  $\omega^\circ$  predicts existence of postnominal adjectives in Icelandic where the N remains below D. That is also not the case, as we saw above where all adjectives are prenominal outside of Pattern III. One remedy would be to assume the root only moving as far as  $\varphi^\circ$  when the noun remains low. However, that would raise problems for D attracting the noun in Patterns I and III.

If the adjective is focalized in pattern I, it would explain prosodic differences between definite and indefinite TNP. As discussed in §4.2.1 above, it is usually the primary stress of the final word in the sentence that receives the most prominence. That is consistent with the unmodified noun *hafragrautur* in (117a) and the indefinite TNP in (117b), where we observe a regular nuclear stress pattern. In (117c), however, it is the adjective that receives the greatest prominence and not the noun. The increased prominence of the adjective over the noun would be consistent with the adjective being focalized in Pattern I.

- (117) a. Nanna borðar HAFRAGRAUT  
           *Nanna eats oatmeal*  
           ‘Nanna eats oatmeal’
- b. Ég gaf Jóni [ gamlan HEST ]  
           *I gave Jón old.STR horse*  
           ‘I gave Jón an old horse.’
- c. Ég gaf Jóni [ GAMLA hestinn ].  
           *I gave Jón old.WK horse.ART*  
           ‘I gave Jón the old horse.’

[Árnason 2011:286]

For the purposes of this dissertation, I do not assume that focus movement involves additional structure, as is conventionally assumed in cartographic approaches (Rizzi 1997, 2001, 2004, Giusti 2002, Brugè 2002, Cinque 1994, 1999, 2005, 2010, Durrelman 2015), but simply involves a position at a phase edge (cf. Lahne 2009). We will see below that it may be necessary to assume a focus position at a lower position as well.

Possessors can also be focalized, as was mentioned above. This applies to both proper noun and pronominal possessors. Note that the proprial article is illicit in this context.<sup>22</sup>

- (118) a. (\*hennar) Astridar þrjár frægu myndir af Dorian Gray  
 PROP Astrid.GEN *three famous pictures of Dorian Gray*  
 ‘Astrid’s three famous pictures of Dorian Gray’
- b. hennar þrjár frægu myndir af Dorian Gray  
*she.GEN three famous pictures of Dorian Gray*  
 ‘her three famous pictures of Dorian Gray’
- c. mínar þrjár frægu myndir af Dorian Gray  
*my three famous pictures of Dorian Gray*  
 ‘my three famous pictures of Dorian Gray’

The availability of the prenominal genitive is contingent on three factors: complexity,<sup>23</sup> animacy and discourse status (O’Connor et al. 2013). Similar to e.g. Russian, the fronted genitive must not contain more than one word, although double names and conjoined phrases are allowed for some speakers. They must be animate and usually cannot be common nouns.<sup>24</sup>

<sup>22</sup>Note that this would be compatible with a clitic doubling analysis of the proprial article, as discussed in a previous note.

<sup>23</sup>O’Connor et al. refer to this as weight, which they take to refer to the number of words within the genitive/possessor.

<sup>24</sup>Only one speaker accepted coordinating a prenominal possessor (O’Connor et al. 2013:109)

- (119) a. \*[ Astrid-ar litlu ] myndir  
           *Astrid-ART little pictures*  
           ‘little Astrid’s pictures’
- b. %Astrid-ar og Gísl-a myndir  
       *Astrid-GEN and Gísli-GEN pictures*  
       ‘Astrid and Gísli’s pictures’
- c. ??kennar-a-ns myndir  
       *teacher-GEN-ART pictures*  
       ‘the teacher’s pictures’
- d. \*bíl-s-ins myndir  
       *car-GEN-ART pictures*  
       ‘pictures of the car’

Postnominal genitives are not subject to such restrictions.

- (120) [ Götur [ lítillar borg-ar [ sem ég hef heimsótt á hverju ári síðan  
           *streets small city-GEN that I have visited on each year since*  
           ég var tólf ára ] ] ] eru iðandi af köngulóm.  
           *I was twelve years are crawling with spiders*  
           ‘The streets of a small city I have been visiting every year since I was  
           twelve are crawling with spiders.’

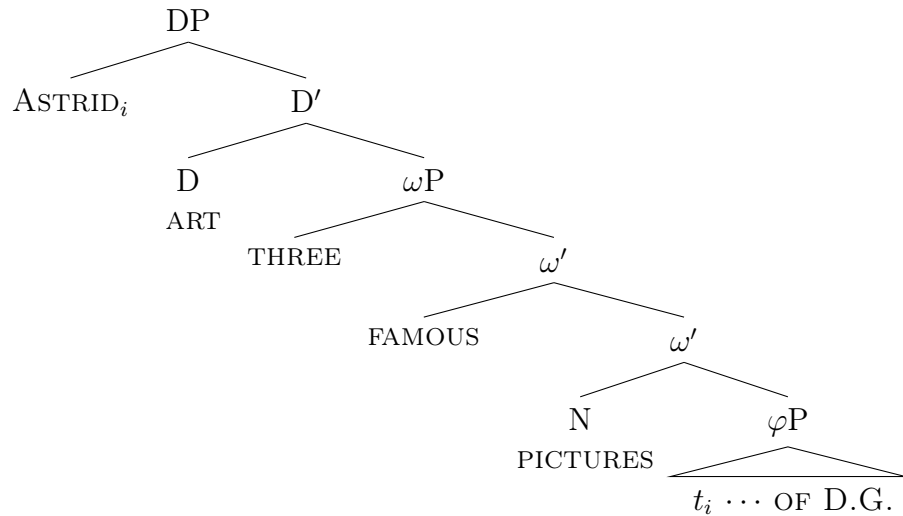
I assume that the possessor, just as the focalized adjective, undergoes movement to Spec-DP. Unlike what we saw with the adjectives, however, this movement is not contingent on N-to-D movement. In fact N can never move if genitive is fronted.

- (121) \*Astrid-ar myndir þrjár  
           *Astrid-GEN pictures three*

I assume that, as with previously discussed movement operations, this is due to properties of D. D, in this case, is not attracting N for head raising. It only targets a [+focus,+nominal] element.

- (122) a. Astridar þrjár frægu myndir af Dorian Gray  
*Astrid.GEN three famous pictures of Dorian Gray*  
 ‘Astrid’s three famous pictures of Dorian Gray’

b.



The question is then why the article is not realized when a possessor is fronted. I assume that the possessor and D undergo morphological merger, triggered by D’s requiring a [+nominal] host. Assuming that pronouns and proper nouns are themselves D°s, the possessor serves as a condition on a null realization of the article. A pure head movement account is ruled out given the base position of the possessor, which starts lower in the structure than N. To undergo head movement to D the possessor would need to either excorporate or violate the head movement constraint by passing by/through  $\omega$ , regardless of thematic roles. Furthermore, given that the elements in question are D°s, the possessors can value the R feature of D.

To sum up this subsection, I argue that the bound article is the result of the noun undergoing head movement to D. This movement is driven by an unvalued feature of D, which is valued by a feature R of  $\omega$

### Pronominal Possessor Shift

There is one more piece of the puzzle left, namely the position of the pronominal possessors. As was discussed in §4.1.4, a pronominal possessor always follows the

noun in Pattern I. The contrast between pronominal and non-pronominal possessors is shown in the following examples, repeated from above.

(123) ADJ > N-ART > POSS PRON / \*POSS > NUM > PP

- a. góðu myndir-nar **mínar** þrjár af Astrid  
*good pictures-ART my.NOM three of Astrid*  
 ‘my three good pictures of Astrid’
- b. góðu myndir-nar **han-s** þrjár af Astrid  
*good pictures-ART he-GEN three of Astrid*  
 ‘his three good pictures of Astrid’
- c. \*góðu myndir-nar **hans Jónas-ar** þrjár af Astrid  
*good pictures-ART PROP Jónas-GEN three of Astrid*  
 ‘Jónas’ three good pictures of Astrid’

(124) ADJ > N-ART > NUM > \*POSS PRON / POSS > PP

- a. \*góðu myndir-nar þrjár **mínar** af Astrid  
*good pictures-ART three my.NOM of Astrid*
- b. \*góðu myndir-nar þrjár **han-s** af Astrid  
*good pictures-ART three he.GEN of Astrid*
- c. góðu myndir-nar þrjár **hans Jónasar** af Astrid  
*good pictures-ART three PROP Jónas.GEN of Astrid*

At this point there are, in principle three options available: i) The pronominal possessors are clitics and must cliticize to N or D, ii) the pronominal possessor undergoes a process analogous to *Pronominal Object Shift* (POS) in the verbal domain (see e.g. Bobaljik & Jonas 1996 and references cited therein and many others), or iii) Pronominal possessors do not originate in the same position as genitives (cf. Pfaff 2015:180ff).

Using diagnostics by Cardinaletti & Starke (1999), the pronominal possessors do classify as weak, in that they are unstressed and appear in a reduced form, e.g.

[ans] rather than [hans] (see e.g. Práinsson 2007:6), and cannot be conjoined.<sup>25</sup>

- (125) a. bílar-nir hans þrír  
           *cars-ART his three*  
           [ˈbɪlatn,ɪrans ˈθɪrɪr]  
       b. \*bílar-nir hans og hennar þrír  
           *cars-ART his and hers three*

The unavailability of conjunction is also consistent with POS among the Mainland North Germanic languages (e.g. Holmberg & Platzack 1995:163, fn.21). Unlike clitics, however, pronominal possessors in this position can be contrastively stressed.

- (126) bílar-nir HANS þrír  
           *cars-ART his three*  
           [ˈbɪlatn,ɪr ˈhans ˈθɪrɪr]

In that light, I argue that the possessive pronoun undergoes a pronominal shift, i.e. when the noun is raised, the pronominal possessor must raise above the numeral. The clitic-like attachment is a purely phonological aftereffect.

The analogy between POS and *Pronominal Possessor Shift* (PPS) is not quite as straight forward as that, however. It appears to be possible for a POSS PRON to be fronted in certain quantifier constructions. These cannot be explained as focalized possessors, since this position is not available to non-pronominal possessors.

- (127) a. allar **þínar** þrjár nýju kenningar  
           *all your three new theories*  
       b. allar **hennar** þrjár nýju kenningar  
           *all she.GEN three new theories*  
       c. \*Allar **Maríu** þrjár nýju kenningar  
           *all María.GEN three new theories*

[Práinsson 2007:119]

<sup>25</sup>Note that the breaks in the phonetic transcriptions in (125) and (126) are for expository purposes only.



At this point, there are two possible explanations. On the one hand it is possible that POSS PRON can optionally move in this case, or it may be the case as Pfaff (2015:180ff) argues, that in these cases POSS PRON are base generated in this position. If this is indeed the base position of POSS PRON in (127), it would mean that thematic roles within the TNP are not established under particular structural configuration (e.g. Perlmutter & Postal 1984, Baker1988 and others for the verbal domain). A UTAH-style approach to thematic roles could still be maintained in one of two ways.

On the one hand, given that this is a position only available to pronouns and not full nouns, much like the above, it is possible that the pronoun is in fact moved to this position. The movement in these constructions could be related to a property of weak pronouns, i.e. that they do not occur in  $\theta$ -positions (Cardinaletti & Starke 1999), and in this case, must move to the head of the phrase. On the other hand, it is possible that the structure involves a recursive DP, one that includes the quantifier, pronoun and a numeral, and a lower one including the adjective and noun. This latter approach is also supported by the corresponding phrases with a postnominal possessor, which correspond to partitive constructions. Note that in (128), a full noun possessor is available.

- (128) a. allar þrjár nýju kenningar-nar **þínar**  
*all three new theories-ART your*
- b. allar þrjár nýju kenningar-nar **hennar**  
*all three new theories-ART she.GEN*
- c. Allar þrjár nýju kenningar-nar **hennar Maríu**  
*all three new theories-ART PROP María.GEN*

Furthermore, partitive constructions are the only context in which two genitives are possible in Icelandic (although highly restricted) and the former must be pronominal Magnússon (1984):

- (129) a. hans hluti arfsins  
           *he.GEN part inheritance.ART*  
           ‘his part of the inheritance’
- b. \*Maríu hluti arfsins  
           *María.GEN part inheritance.ART*  
           ‘María’s part of the inheritance’

Hence, if these constructions involve recursive DPs, the pronominal possessor in (127) may be a part of the higher DP. However, the unavailability of full noun possessor remains unexplained.

Either of these approaches would allow for maintaining the idea that thematic relations within the TNP are established via particular structural configurations.

#### 4.3.4 Feature-sensitive Lowering

As mentioned above, in the absense of pronominal modifiers, the article is always bound, regardless of context.

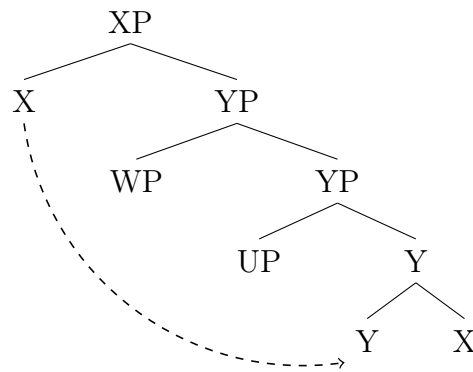
- (130) a. mynd-in af Dorian Gray  
           *picture-ART of Dorian Gray*
- b. \*hin mynd af Dorian Gray  
           *ART picture of Dorian Gray*  
           ‘the picture of Dorian Gray’

However, as argued above, the noun in Pattern II does not undergo raising. If that were the whole story, the prediction would be that (130b) were grammatical. Hence it appears that there is more to be said.

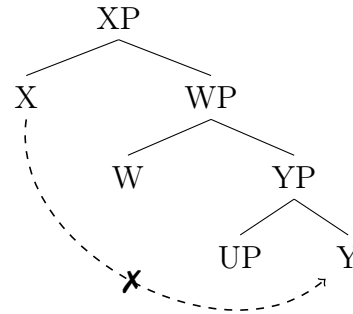
There are two options at this point how to account for (130), both of which involve post-syntactic displacement of the article. On the one hand there is head-to-head lowering (see e.g. Embick & Noyer 2001, Bobaljik 1995), where a syntactic head moves downwards and attaches to an adjacent syntactic head on the spine, ignoring any intervening non-heads, (131a). In case of any intervening heads or

specifiers, lowering is blocked, (131b).

(131) a.

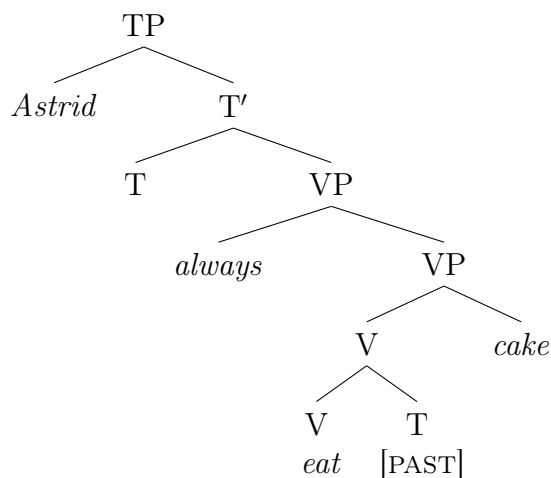


b.

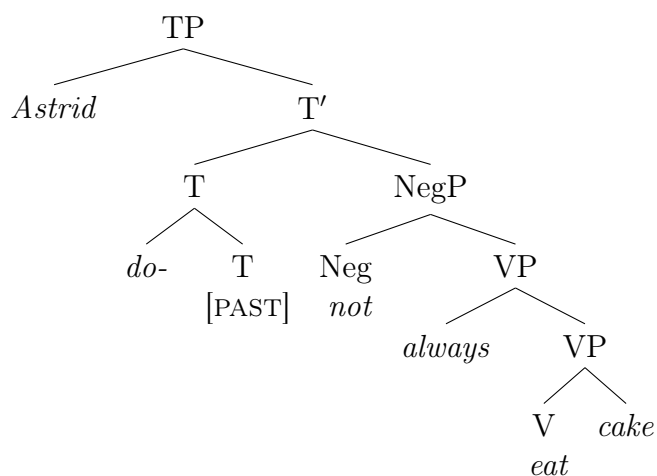


The classical case of lowering is affix hopping in English Chomsky (1957), where T lowers to the verb, ignoring any intervening adverbs. In case of negation, lowering is blocked and a dummy verb is inserted in order to realize tense. Simplified examples are provided below.

(132) a.



b.



Another option would be *Local Dislocation* (LD) (Embick & Noyer 2001 and also Ingason for an analysis along these lines for the Icelandic DP), an item is dislocated and adjoined to a linearly adjacent item.

(133)  $X Y Z \Rightarrow Y+X Z$ 

An example of such process is the Latin enclitic *-que*:

(134)      bonī   puerī   **-que**   bonae   puellae  
               good boys   and   good girls  
                               ↓  
               bonī   puerī   bonae-**que**   puellae  
               good boys   good-and   girls

[adapted from Embick & Noyer 2001:575]

These two processes differ in two ways: On the one hand, Lowering can ignore adjoined intervening elements, whereas LD cannot. In other words, Lowering makes reference to structure, whereas LD makes reference to linear order of elements. On the other hand, Lowering takes place prior to Vocabulary Insertion (VI), whereas LD follows it. That means that adjunction resulting from Lowering can influence contextual allomorphy, e.g. *go-* ~ *wen-* alternation in the presense of [PAST], but adjunction resulting from LD, can, at most, trigger readjustment.

Both approaches, under their standard formulation, have some potential and drawbacks with regards to the Icelandic DP. Starting with LD, it can be straightforwardly applied to (130). If there is any intervening material, as in (135), LD is blocked.<sup>26</sup>

- (135) a. hinar þrjár myndir af Dorian Gray  
 ART *three pictures of Dorian Gray*  
 ‘the three pictures of Doran Gray’
- b. hinar frægu myndir af Dorian Gray  
 ART *famous pictures of Dorian Gray*  
 ‘the famous pictures of Dorian Gray’
- c. \*þrjár myndir-nar af Dorian Gray  
*three pictures-ART of Dorian Gray*  
 ‘the three pictures of Doran Gray’

ART appears, however, to trigger contextual allomorphy. For the noun *maður* ‘man’, NOM.PL is realized as  $\emptyset$  in the absense of ART, but in its presence, it is realized as *-ir*.

- (136) a. menn- $\emptyset$   
*man-NOM.PL*
- b. menn-ir-nir  
*man-NOM.PL-ART*

Under Lowering, the pattern in (136) can be accounted for under contextual allomorphy.<sup>27</sup>

<sup>26</sup>Note that (135c) is possible under a partitive reading.

<sup>27</sup>Note that this would not exclude Patterns I and III since D attracts N prior to lowering in

This could alternatively be achieved through deletion of the case marker in the absence of the article. If that is the case, then (136) is not a case of contextual allomorphy, but a case of readjustment, which could be consistent with LD. Icelandic thus appears to be inconclusive in that respect, but the answer may lie with the other North Germanic Languages.

The other North Germanic languages follow (roughly) Pattern II, as mentioned above, i.e, in the presence of a prenominal modifier, the free article is realized. This is exemplified below by Faroese and Norwegian, respectively.<sup>28</sup> In both examples, the realization of the bound and free articles are quite different in form, *tann* ~ *-in* in Faroese and *dei* ~ *-a* in Norwegian.

(137) Faroese Julien 2005:27

- |                                                     |                                                                                 |
|-----------------------------------------------------|---------------------------------------------------------------------------------|
| a. kettlingur-in<br><i>kitten-DEF</i><br>the kitten | b. tann svartu kettlingur-in<br>ART <i>black kitten-DEF</i><br>the black kitten |
|-----------------------------------------------------|---------------------------------------------------------------------------------|

(138) Norwegian (Julien 2005:26–27)

- |                                              |                                             |                                                                         |
|----------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------|
| a. skjort-a<br><i>shirt-DEF</i><br>the shirt | b. *dei skjorte-ne<br>ART <i>shirts-DEF</i> | c. den gule skjort-a<br>ART <i>yellow shirt-DEF</i><br>the yellow shirt |
|----------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------|

Following Julien (2005), I assume that double definiteness is a result of simultaneous realization of two heads. Under the current approach, these heads are D and  $\omega$ . In the absence of prenominal modifiers, D is realized as  $\emptyset$ . This leaves two options, either VI can be conditioned by phrasal material from outside  $X^\circ$ , as suggested by LaCara (2011) or D lowers to N. Under lowering, (137) and (138) follow and well established locality restrictions on contextual allomorphy are preserved. In the absence of prenominal modifiers, D lowers to N, but in their presence, N is no longer

---

such cases.

<sup>28</sup>Note, that for double definiteness, I will be glossing the bound article as DEF.

a featurally appropriate target, and D remains in-situ. Alternatively this could also be explained as deletion under an LD account.

Danish has been at the center of a long standing debate on the nature of definiteness marking in North Germanic (e.g. Embick & Noyer 2001, Hankamer & Mikkelsen 2002, 2005, Embick & Marantz 2008, Katzir 2011, Norris et al. 2014), hence it would warrant some special notice.

First, as noted above, Danish patterns with the other North Germanic languages in terms of distribution of the article.

(139) Danish (Hankamer and Mikkelsen 2002:137)

- |                                                |                                     |                                                              |
|------------------------------------------------|-------------------------------------|--------------------------------------------------------------|
| a.    hest-en<br><i>horse-the</i><br>the horse | b.    *den hest<br><i>the horse</i> | c.    den røde hest<br><i>the red horse</i><br>the red horse |
|------------------------------------------------|-------------------------------------|--------------------------------------------------------------|

Embick & Noyer (2001), assuming an Abney (1987)-style DP structure, where the adjective takes NP as a complement, proposed that N raises to D, but is blocked when A intervenes. If that were the case, it would be expected that the process in (139) be exceptionless. That is not the case, as Hankamer & Mikkelsen (2002, 2005) point out. Namely, common gender deverbal nouns containing the present participial morpheme *-ende* do resist the bound article in Danish.<sup>29</sup>

- |                                               |                                           |                                            |
|-----------------------------------------------|-------------------------------------------|--------------------------------------------|
| (140) a.    en studerende<br><i>a student</i> | b.    *studerend-en<br><i>student-the</i> | c.    den studerende<br><i>the student</i> |
|-----------------------------------------------|-------------------------------------------|--------------------------------------------|

[Hankamer & Mikkelsen 2002:146]

Neuter counterparts of this class of nouns do not resist the bound article.

<sup>29</sup>Similar exceptions have been noted for Norwegian and Swedish (Hankamer & Mikkelsen 2002, 2005, Börjars & Harries 2008, Faarlund 2009). Mikkelsen (1998) discusses other classes of nouns that resist the bound article taken from an orthographic dictionary, including multiple loan words. Exeptions can be found online, which raises the question of prescription and usage, which I cannot do justice to at this time. So I leave those aside for now.

- (141)    a.   mælle mværend-et  
               *between.being-the*  
               the unfinished business
- b.   \*det mellemværende  
               *the unfinished.business*

[Hankamer & Mikkelsen 2005:98]

Nor do other common gender deverbal nouns.

- (142)    a.    løber-en  
                  *runner-the*  
                  the runner
- b.    \*den løber  
                      *the runner*

[Hankamer & Mikkelsen 2005:101, n. 21]

Hankamer & Mikkelsen (2002, 2005) argue that this is evidence that whatever process is responsible for the bound article must be vocabulary sensitive, i.e. it is making reference to inflectional or morphological class (in this case gender) etc. (Embick & Noyer 2001:566–567).<sup>30</sup> Hankamer & Mikkelsen (2005) suggest post-VI Lowering, whereas Embick & Marantz (2008) suggest LD in order to accommodate the exceptions.

If Lowering is made feature-sensitive, Lowering becomes a viable option again. The exceptions in question involve a subset of nouns that are identifiable through their feature content. Lowering, in this case, is sensitive to a combination of animacy and feature combination associated with the present participial morpheme *-ende* (see also Julien 2005:72 for an alternative in this vein). Animacy is known to play a role in syntax, e.g. in the selection of arguments (Larson 1990:610–611).

- (143) a. John blamed Max for the accident.  
b. ??John blamed the weather for the accident.

Furthermore, these nominals resist plural morphology (Julien 2005:71–72)

<sup>30</sup>See, however, Bobaljik (2012) on pre-VI sensitivity to diacritic features.



- (144) mange studer-ende(\*-r)  
*many study-PRES.PTC(-PL)*  
 ‘many students’

And it is possible that these nominals do contain additional verbal structure, as has been proposed for corresponding nominals in Swedish (cf. Lundquist 2008).

An LD analysis is still equally viable at this point, i.e. LD is vocabulary sensitive and this class of examples is identifiable post-VI. There is, however another class of exceptions that can set the two approaches apart. That is the optionality of bound/free article with restrictive relative clauses.

- (145) a. Mus-en som ikke havde spist af osten overlevede  
*mouse-ART that not had eaten of cheese survived*  
 RESTRICTIVE/NONRESTRICTIVE  
 b. Den mus som ikke havde spist af osten overlevede  
*ART mouse that not had eaten of cheese survived*  
 ‘The mouse that didn’t eat the cheese survived’  
 RESTRICTIVE/\*NONRESTRICTIVE  
 [adapted from Mikkelsen 1998:59]

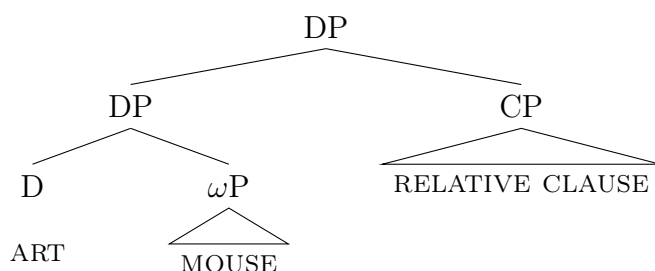
A similar pattern is obtained in the other North Germanic languages, where the prenominal article is optional in case of restrictive relative clauses, whereas non-restrictive relative clauses have no effects on the distribution of the article (Julien 2005:77–79), exemplified by Swedish below.

- (146) a. (det) hus(-et) som han köpte  
*ART house-ART that he bought*  
 ‘the house that he bought’ RESTRICTIVE  
 b. Hus\*(-et), som han för övrigt ville riva, är nu till salu.  
*house-ART that he by the way wanted demolish is now for sale*  
 ‘The house, which he wanted by the way to demolish, is now for sale.’  
 NONRESTRICTIVE  
 [Swedish, Julien 2005:78–79]

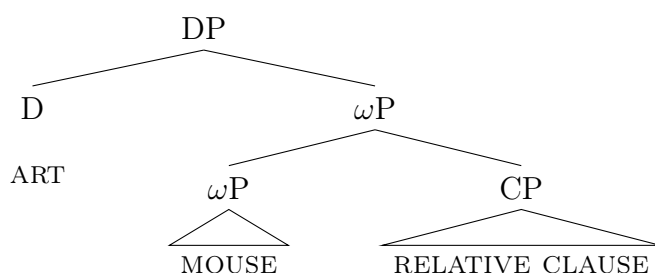
Recall that LD can only make reference to linear order—ART and N are linearly adjacent. Both forms involve the same noun, hence vocabulary sensitivity cannot lie behind this pattern. This indicates that definiteness marking in North Germanic requires a structural account rather than a linear adjacency-based account. The question is, however, what is the structure of such sentences.

Hankamer & Mikkelsen (2002) relate the difference to different points of adjunction, where non-restrictive relative clauses are adjoined to DP, and restrictive relative clauses are adjoined to NP, which would correspond to  $\omega$ P under the current theory.<sup>31</sup> The structures can be translated into the current account in the following manner:<sup>32</sup>

(147) NON-RESTRICTIVE RELATIVE CLAUSE



(148) RESTRICTIVE RELATIVE CLAUSE



Neither LD nor Lowering predicts any difference between these structures. In either

<sup>31</sup>Hankamer and Mikkelsen were working under Lexicalist assumptions regarding the bound article. In their structure corresponding to (147), N and D are merged in the Lexicon and enter the syntax as D. In (148), D and N enter the syntactic derivation separately and hence the article must remain free.

<sup>32</sup>I am setting aside extraposed and split-antecedent relative clauses (e.g. Ross 1967, Perlmutter & Ross 1970, McKinney-Bock 2013) and their derivation, since doing these phenomena justice would take us too far afield. I will then leave them for further research.

structure, D and N are sufficiently local for D to attach to N.

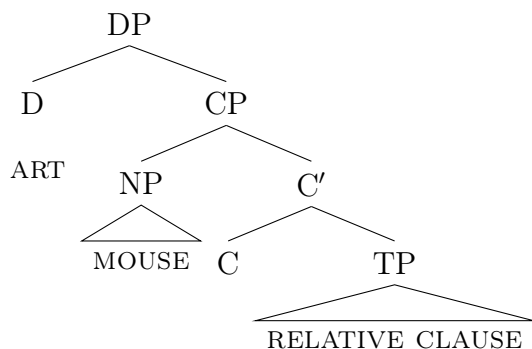
An alternative approach would be to follow, e.g. Kayne (1994), Åfarli (1994), Julien (2005), Hankamer & Mikkelsen (2005) in assuming a head-internal analysis of restrictive relative clauses (as Hankamer & Mikkelsen later argued). Restrictive and non-restrictive relative clauses differ, e.g. in the availability of reconstruction effects (Åfarli 1994; Hankamer & Mikkelsen 2005 and references cited therein). In the examples below, an element within the relative clause can bind a reflexive possessor in the raised DP if it raises from an object position, but not when it raises from an subject position.<sup>33</sup>

- (149) a. [ De [ aspekter af **sin**<sub>i</sub> personlighed ]<sub>j</sub> som **Harry**<sub>i</sub> havde  
 ART aspects of REFL personality that Harry had  
 sværest ved at acceptere *t<sub>j</sub>* ] ødelagde hans karriere.  
 hardest by to accept ruined his career  
 ‘The aspects of his<sub>i</sub> personality that Harry<sub>i</sub> had the most difficulty  
 accepting ruined his career.’
- b. \*[ De [ aspekter af **sin**<sub>i</sub> personlighed ]<sub>j</sub> som ødelagde **Harrys**<sub>i</sub>  
 ART aspects of REFL personality that ruined Harry’s  
 karriere ] var forbløffende få.  
 career were surprisingly few  
 Intended: ‘The aspects of his<sub>i</sub> personality that ruined Harry’s<sub>i</sub> career  
 were surprisingly few’  
 [adapted from Hankamer & Mikkelsen 2005:115]

Under a head-internal analysis the structure of a restrictive relative clause would be along the following lines where the raised element moves from its base position within the relative clause to Spec-CP. CP is then, in turn dominated by D, which houses the definite article.

<sup>33</sup>In addition to reconstruction effects, Åfarli also provides evidence from idioms. Åfarli packages the difference in terms of *der* and *som* relatives, rather than restrictive—non-restrictive. Alternatively, Julien (2005:92–96) argues that all relative clauses in North Germanic are head-internal, but does not address reconstruction possibilities.

## (150) HEAD-INTERNAL RESTRICTIVE RELATIVE CLAUSE



Under the structure in (150), Lowering is blocked. The adjacent head along the spine of the DP is C, which is not an appropriate host for D.

The advantage of feature sensitive Lowering, however is that it offers a way to unify the account of all the phenomena discussed in this subsection, i.e. the same process is responsible for blocking lowering in case of restrictive relative clauses as well as the common gender participials discussed above. Furthermore the analysis then extends beyond Danish, to double definiteness in Faroese, Norwegian and Swedish as well as Pattern II in Icelandic.

Finally, since lowering now makes reference to morphosyntactic features, how do we distinguish between Lowering and head raising? I argue that the difference lies in timing and motivation. On the one hand, as argued above, head raising is motivated by feature valuation and hence must take place prior to transfer to PF. Following Embick and Noyer (2001), i.a., I assume that Lowering is a post syntactic process, driven by the moving element's need for a host. Lowering should then never participate in feature valuation. Under these assumptions, blocking of head raising would leave a feature on D unvalued and predict Pattern II and all prenominal modified DPs in the other North Germanic languages ungrammatical.

### 4.3.5 Summary

To sum up this section, we have seen strong arguments for assuming that the bound and free articles are a realization of the same head, namely D. We also saw argument for the bound article in Patterns I and II being a result of raising, specifically head movement, which allows for raising N to D without assuming ad hoc displacement of the postnominal material. This movement, I argued, is driven by an unvalued feature of a deictic D. Based on the different interpretations available for the adjective in Patterns I and III, as well as evidence from prosody, I argued that the adjective in Pattern I undergoes focus movement to Spec-DP. Finally, I argued that in Pattern II DPs without prenominal modifiers, D undergoes lowering to N. I furthermore argued that Lowering be made sensitive to the feature content of its potential target, unifying the analysis of Pattern II and definiteness across North Germanic.

## 4.4 Summary

In this chapter, I have provided an overview of the possible and impossible orders of elements within the Icelandic DP, where four patterns arise. Following works that reanalyze Greenberg’s Universal #20 as a condition on hierarchical organization, I argue that Pattern II, although not the unmarked pattern, is the base from which all other patterns are derived. Furthermore, evidence from binding indicate that, when it comes to the relationship between possessors and various PPs, “rightwards is downwards”, i.e. certain PPs are further embedded in the structure than possessors.

These facts were then put together with the NP-structure indicated by the noun structure established in chapter 2. In order to maintain the structural relationship between the postnominal elements and avoid ad hoc movement operations, I proposed that fronting of the adjective, noun and pronominal possessor were the result of three independently motivated processes. The noun undergoes movement to D in

order to value an unvalued feature R on D. Adjectives and undergo focus movement. Possessive pronouns undergo a process similar to pronominal object shift or negative shift. This derives the possible orders within the DP and preserves the structural configuration of the unfronted elements.

When D and  $\omega$ 's feature configuration is consistent with Pattern II, I proposed that D undergoes feature-sensitive Lowering to  $\omega$ . Although Icelandic data was inconclusive between a structural account or a linear account (LD), evidence from the other North Germanic languages point to a structural approach to the bound article. This allows for a unified account of Pattern II and definiteness marking across North Germanic.

# Chapter 5

## Back to domains

The structure proposed in the previous chapter makes predictions with regards to domain-bound phenomena such as ellipsis and extraction. In this section, I offer some preliminary explorations into these phenomena. First I will address the clitic/affix debate regarding the bound article with respect to the theory of morphophonological domains put forth in chapter 3. I argue that despite the bound article showing some affix-like behaviour, it is indeed a clitic. The affix-like behaviour results from the article being a part of the extended projection of the root. Second, I will examine ellipsis and extraction. However, there are a number of interfering factors that make the data inconclusive. In chapter 3 we observed two distinct domain boundaries within the noun and given the architecture of grammar adopted here, the expectation is that the domains within the DP will correspond to those within the noun, namely  $n^\circ$  and  $D^\circ$ . Note that, in order to limit the scope of this section, I will contain the discussion, for the most part, to concrete and result nominals. Following e.g. Alexiadou (2009) these should differ minimally in terms of structure and offer an appropriate scope for the discussion.

This chapter is organized as follows: In §1, I will address the question of whether the bound article in Icelandic should be considered to be a clitic or an affix under

the theory developed here. In §2, I examine ellipsis, and in §3, I provide some preliminary explorations into extraction. The chapter is then summarized in §4. A pilot study on NP-internal ellipsis in Icelandic is detailed in an appendix to this chapter.

## 5.1 The bound article — Clitic or Affix

The debate regarding the clitic status of the Icelandic has generally focussed on morphophonological properties and situated in a Lexicalist framework, with the point of contention being whether the article is attached in the Lexicon (Rögnvaldsson 1990, Indriðason 1994, Árnason & Pind 2005) or in syntax (Kiparsky 1984). Given that I adopt a non-lexicalist theory in this dissertation, that aspect of the debate becomes somewhat moot. It is, however worth revisiting with respect to predictions made by the theory developed here.

Starting on the affix side of the debate, what proponents of this view point to is that various phonological processes that typically occur at the juncture of a base and an affix do occur between the article and the noun. The following examples were adapted from Indriðason (1994:94–95).

### (1) Pre-aspiration

| Base–affix                                      | Noun–article                                  |
|-------------------------------------------------|-----------------------------------------------|
| a. /kaut/-/na/<br>[kauhtna]<br>riddle-GEN.PL    | a. /skaup/-/nym/<br>[skauhpnym]<br>closet-ART |
| b. /rjup/-/na/<br>[rjuhpna]<br>ptarmagin-GEN.PL | b. /strauk/-/nym/<br>[strauhknym]<br>boy-ART  |



## (2) occlusion

Base-affix

- a. /saɣ/-/na/  
[sakna]  
story-GEN.PL
- b. /dúv/-/na/  
[dupna]  
pidgeon-GEN.PL

Noun-article

- a. /θjouf/-/nym/  
[θjoupnym]  
thief-ART
- b. /slaɣ/-/nym/  
[stlaknym]  
fight-ART

t-insertion

Base-affix

- a. /kvɛr/-/n/  
[kvɛtn]  
who-DAT.SG
- b. /vɔr/-/n/  
[vɔtn]  
our-ACC.SG

Noun-article

- a. /kfɔ̌par/-/nɪr/  
[kfɔ̌patnɪr]  
puppies-ART
- b. /stɛ̌pyr/-/nar/  
[stɛ̌pytnar]  
girls-ART

Furthermore, vowel deletion occurs within the article as in the following example.

- (3) hundar-*in*-ir → hundarnir  
dogs-ART-NOM.PL 'the dogs'

Furthermore, as previously mentioned, the article can trigger contextual allomorphy for *maður*, forcing an overt realization of nominative and accusative plural affixes. This further indicates a very close relationship between the noun and the article.

- (4) a. menn-∅  
men-NOM.PL  
'men'
- b. menn-ir-n-ir  
men-NOM.PL-ART-NOM.PL  
'the men'

Finally, the article is highly selective with respect to its host, which under Zwicky (1977), Zwicky & Pullum (1983), points to affixhood.

There are however a number of complications, as the article shows various atypical behaviours. First, as Kiparsky points out, is the fact that the article itself does

not trigger vowel deletion on the noun.

- |     |    |                                         |    |                                           |
|-----|----|-----------------------------------------|----|-------------------------------------------|
| (5) | a. | /hamar/-/ɪ/<br>[hamrɪ]<br>hammer-DAT.SG | b. | /hamar/-/ɪmː/<br>[hamarɪmː]<br>hammer-ART |
|-----|----|-----------------------------------------|----|-------------------------------------------|

Second, in case of hiatus resolution at the juncture of an affix and a base, and at the juncture of two words, the left vowel is deleted.

- |     |    |                                                              |    |                                           |
|-----|----|--------------------------------------------------------------|----|-------------------------------------------|
| (6) | a. | Ég ætla í bíó.<br>[jɛɣæhtibiou]<br>'I'm going to the movies' | b. | /kvaiðɪ/-/ym/<br>[kfaiðym]<br>poem-DAT.PL |
|-----|----|--------------------------------------------------------------|----|-------------------------------------------|

At the juncture of the article and noun, however, the process is reversed and the right vowel is deleted.

- |     |    |                                     |    |                                    |
|-----|----|-------------------------------------|----|------------------------------------|
| (7) | a. | /kɔna/-/ɪm/<br>[kɔnan]<br>woman-ART | b. | /sœk/-/ɪm/<br>[sœkɪm]<br>blame-ART |
|-----|----|-------------------------------------|----|------------------------------------|

Third, as discussed above, the article has a (near) identical independent variant, which under Zwicky (1977), Zwicky & Pullum (1983) points to cliticness. Both forms of the article are inflected for case, number and gender. The paradigms for the bound and free forms are repeated below.

(8) The free article

|          |     | MASCULINE | FEMININE | NEUTER |
|----------|-----|-----------|----------|--------|
| SINGULAR | NOM | hin-n     | hin-∅    | hi-ð   |
|          | ACC | hin-n     | hin-a    | hin-u  |
|          | DAT | hin-um    | hin-ni   | hin-u  |
|          | GEN | hin-s     | hin-nar  | hin-s  |
| PLURAL   | NOM | hin-ir    | hin-ar   | hin-∅  |
|          | ACC | hin-na    | hin-ar   | hin-∅  |
|          | DAT | hin-um    | hin-um   | hin-um |
|          | GEN | hin-na    | hin-na   | hin-na |

(9) The bound article

|          |     | MASCULINE | FEMININE         | NEUTER          |
|----------|-----|-----------|------------------|-----------------|
| SINGULAR | NOM | -in-n     | -in- $\emptyset$ | -i- $\delta$    |
|          | ACC | -in-n     | -in-a            | -in-u           |
|          | DAT | -in-um    | -in-ni           | -in-u           |
|          | GEN | -in-s     | -in-nar          | -in-s           |
| PLURAL   | NOM | n-ir      | n-ar             | in- $\emptyset$ |
|          | ACC | n-a       | n-ar             | in- $\emptyset$ |
|          | DAT | n-um      | n-um             | n-um            |
|          | GEN | n-na      | n-na             | n-na            |

Furthermore, although the article agrees with the noun in terms of all of these features, the inflectional marking on the bound article is not merely a copy of the inflectional affix of the noun, which may vary based on inflectional classes. The case marking on the article does not vary in that respect.

(10) a. kon-ur-n-ar  
*woman*-NOM.PL-ART-NOM.PL  
 b. fjaðr-ir-n-ar  
*feather*-NOM.PL-ART-NOM.PL

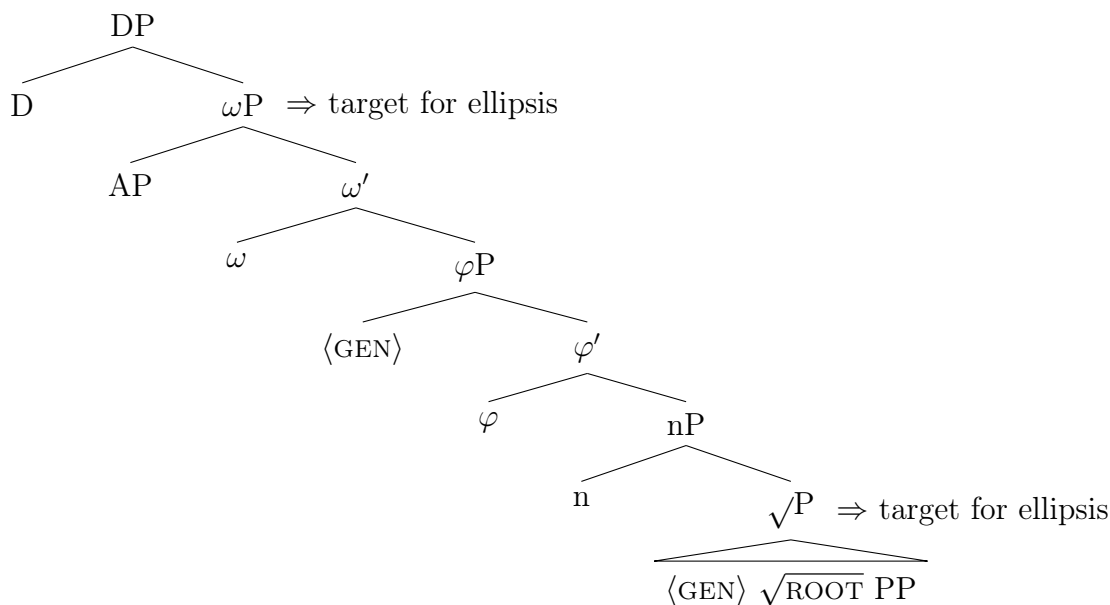
To sum up the discussion so far, even though the article does show some affix-like qualities in terms of interactions with the noun, in other ways, it is very atypical with respect to affixes and more clitic-like.

I propose that the article is in fact a clitic, and hence behaves in a non-affix-like manner. The source of the affix-like behaviour lies in the fact that the article, despite being a clitic, is also a part in the extended domain of the root under the definition of the domain of morphophonological interactions defined in chapter 3. Once the article becomes a part of the complex nominal head, it will be included in the morphophonological domain of the noun. Hence the contradictory behaviour occurs.

## 5.2 Something has gone missing — A few notes on NP ellipsis

Under the assumption that ellipsis is phase bound (Gengel 2006, 2009, Gallego 2009, van Craenenbroeck 2010, Wurmbrand 2011, 2012a,b,c, 2014b, 2017, Bošković 2014), there are number of options with regards to analyses. For the purposes of this dissertation, however, I will adopt the theory that ellipsis targets complements of phases, following e.g. Wurmbrand (2011, et seq.). Under the structure assumed here, there are two potential targets for ellipsis, i.e. the complement of  $n^\circ$  and the complement of  $D^\circ$ . Note, however, that in a structure where  $D$  is absent,  $\omega^\circ$  is the highest functional head, and hence it's complement becomes a potential target for ellipsis.

(11)



Above I left open the question of whether genitives are all base generated in the same position or whether thematic roles of the genitive are a result of different base positions. The ellipsis data, so far, points to the latter conclusion, i.e. different thematic roles are established in different base positions. This is reflected in the structure provided in (11), where the genitive is placed in either Spec- $\varphi$ P or Spec- $\sqrt{P}$ .

The discussion that follows is informed by a pilot study on NP ellipsis in Icelandic carried out in February–April 2016, discussions with other native speakers as well as my own judgments. The study and its findings are described in detail in an appendix.

In the examples below, the antecedent is bracketed and elided material is stricken through. Given the Antecedent in (12), it is possible to strand the adjective, as in (13).<sup>1</sup>

<sup>1</sup>Recall that Icelandic has indefinite possessive constructions. Their indefiniteness is indicated by the strong declension of the adjective. Note, however, that although these constructions are indefinite, they are subject to specificity effects.

- (12) Ottó átti alltaf erfitt með [furðulegar kenningar Gísla um  
*Ottó had always difficult with bizarre theories Gísli.GEN about*  
 setningafræði] en var alltaf glaður að sjá...  
*syntax but was always glad to see*  
 ‘Ottó always had some difficulties with Gísli’s bizarre theories about syntax,  
 but was always glad to see...’

- (13) A ~~N~~-GEN-PP

góðar kenningar Gísla um setningafræði  
*good theories Gísli.GEN about syntax*  
 ‘Gísli’s good theories about syntax’

Note that the interpretation of (13), obligatorily includes the modifiers *Gísli* and *about syntax*. (13) cannot denote *good theories* only.<sup>2</sup> (13), furthermore, requires a linguistic antecedent. The structure of (13) would be the following.<sup>3</sup>

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<sup>2</sup>Note that this is in contrast to English where possessors are always outside the domain of ellipsis, even with ‘one’-replacement:

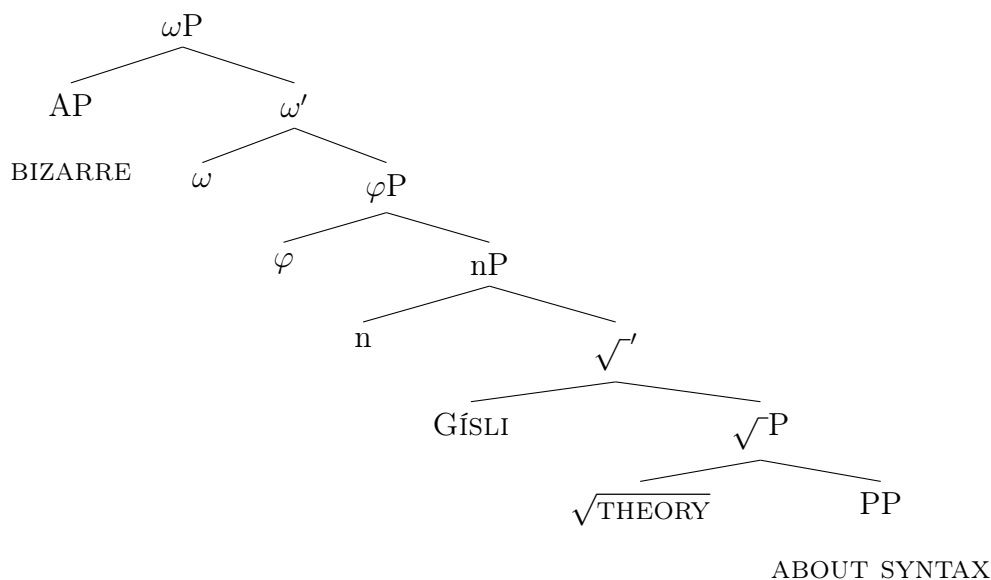
- (i.) Otto had difficulties with Gísli’s bizarre theories about syntax, but was always glad to see [good ones].

[Jonathan Bobaljik, p.c.]

In (i), *good ones* only obligatorily refers to *theories about syntax*, but not necessarily those of *Gísli*.

<sup>3</sup>this structure will be further motivated below

(14)



Under this structure, it would seem that the target of ellipsis is the complement of  $\omega P$ . That would be consistent with the theory adopted here. If  $\omega P$  marks the top of the extended nominal projection,  $\omega$  is a phase and  $\varphi P$  would be an appropriate target. However, it is also possible to strand the genitive to the exclusion of all else in the TNP.

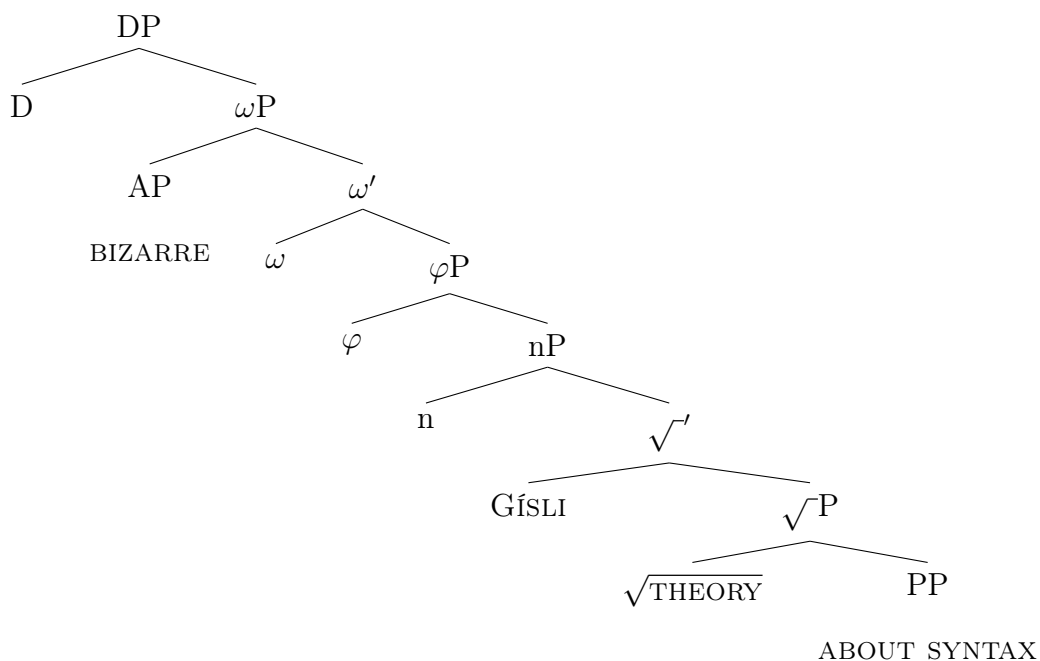
(15) A-N GEN PP

~~furðulegar kenningar~~ Jónasar um setningafræði  
*bizzare theories Jónas.GEN about syntax*  
 ‘Jonas’ bizzare theories about syntax’

It has been argued that various different types of movement operations, such as focus movement, can escape ellipsis sites (see e.g. Gengel 2007, 2006, Merchant 2013, Bošković & Şener 2014, Bošković 2014, Wurmbrand 2017 and references cited therein). Hence, in order for the genitive to survive ellipsis, it must move out of the ellipsis site, which, as can be seen from (15), must contain the adjective. However, in the structure in (14), there is no position for the genitive to move to. AP is in

Spec- $\omega$ P which is the highest projection in the structure. We must then revise the picture from before and assume a null D dominating the structure. This will allow us to maintain the notion that ellipsis only targets continuous units.

(16)



Ellipsis then appears to be targetting the complement of D. The genitive or adjective can escape the ellipsis site by undergoing focus movement to Spec-DP. Alternatively, ellipsis in the previous example may simply be targetting the complement of  $n$ . If that is the case, the adjective in (15) would not need to move to Spec-DP in order to escape ellipsis.

It is impossible to strand both the genitive and adjective when the genitive has a participant reading, as in (17).

(17) \*<sub>A</sub> N GEN PP

\*góðar kenningar Jónasar um setningafræði  
*good theories Jónas.GEN about syntax*  
 ‘Jonas’ good theories about syntax’



This follows from i) the limitations on the size of focussed elements discussed above, i.e. focalized nominals may not be larger than a single word, and ii) the fact that no single spell-out domain contains the two elements.

It is worth addressing the question at this point whether these examples are truly ellipsis or not. It has been argued that requiring a linguistic antecedent is a property of true ellipsis but not deep anaphora (cf. Hankamer & Sag 1976). Ellipsis further differs from deep anaphora in terms of the availability of a sloppy reading, where ellipsis is argued to allow for sloppy reading, but deep anaphora does not (see e.g. Kim 1999, Bošković 2014).<sup>4</sup>

These tests point to the phenomena discussed so far being true ellipsis rather than deep anaphora. They require a linguistic antecedent and sloppy reading is available.

- (18) a. Jónas las [gula bók sína] en Astrid las [rauða bók sína]  
*Jónas read yellow book self's but Astrid read red book self's*  
 'Jónas read his yellow book, but Astrid read her red one.'
- b. Garpur las [bók Jónasar um sjálfan sig] en Ottó las [bók  
*Garpur read book Jónas about self SE but Ottó read book*  
*Astridar um sjálfan sig]*  
*Astrid about self SE*  
 'Garpur read Jónas' book about himself but Ottó read Astrid's book  
 about herself.'

There is a second phenomenon in Icelandic that seems to contrast the ellipsis constructions discussed above. When a demonstrative is present, however, any of the elements can be stranded and no linguistic antecedent is needed. This is in direct contrast with the ellipsis construction discussed above.

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<sup>4</sup>See however Merchant (2013) and references therein for arguments against the availability of sloppy reading as a diagnostic for ellipsis.

- (19) a. þessar furðulegu kenningar [hans Gísli [um setningafræði]]  
*these bizarre theories PROP Gísli.GEN about syntax*
- b. þessar furðulegu kenningar [hans Gísli [um setningafræði]]  
*these bizarre theories PROP Gísli.GEN about syntax*
- c. þessar furðulegu kenningar [hans Gísli [um setningafræði]]  
*these bizarre theories PROP Gísli.GEN about syntax*

Second, the constructions in (19) differ from the ellipsis construction in that (19) does not require a linguistic antecedent. Sloppy reading is also excluded for (19).

- (20) Jónas las [þessa rauðu bók sína] en Astrid las [þessa gulu]  
*Jónas read that read book self's but Astrid read that yellow*
- a. 'Astrid read a particular yellow book'
- b. 'Astrid read the yellow book about Jónas'
- c. \*'Astrid read a yellow book about herself'

The lack of availability of a sloppy reading in (20) points to this construction being a deep anaphora rather than true ellipsis. If this were indeed ellipsis, the ellipsis site would still include the reflexive possessor and a sloppy reading would be expected.

Turning our attention back to ellipsis, when the genitive has a possessor reading, it is possible to strand both adjective and genitive.

- (21) Ég tek stóru myndina hennar Astridar af Dorian Gray ef þú tekur  
*I take big picture PROP Astrid.GEN of Dorian Gray if you take*  
**litlu myndina hans Garps af Dorian Gray**  
*small picture PROP Garp.GEN of Dorian Gray*  
 'I'll take Astrid's big picture of Dorian Gray if you'll take Garpur's little one.'

If genitives had a uniform base position within the TNP, this would be entirely unexpected. Recall, however that in the absence of PPs a genitive can be ambiguous between whatever thematic roles are available. In (22) (examples repeated from §1)

the genitive is ambiguous between possessor, agent and theme.

- (22) a. mynd Astrid-ar                      b. greining Garp-s  
       *picture Astrid-GEN*                      *analysis Garp-GEN*  
       ‘Astrid’s picture’                      ‘Garpur’s analysis’

This ambiguity is lost when PP is added to the structure. The genitive is interpreted as an agent and the PP is interpreted as theme.

- (23) a. mynd Garp-s        af skinku  
       *picture Garp-GEN of ham*  
       ‘Garpur’s picture of ham’  
       b. greining Astrid-ar    á nafnliðaformgerð  
       *analysis Astrid-GEN on noun.phrase.structure*  
       ‘Astrid’s analysis of NP structure’

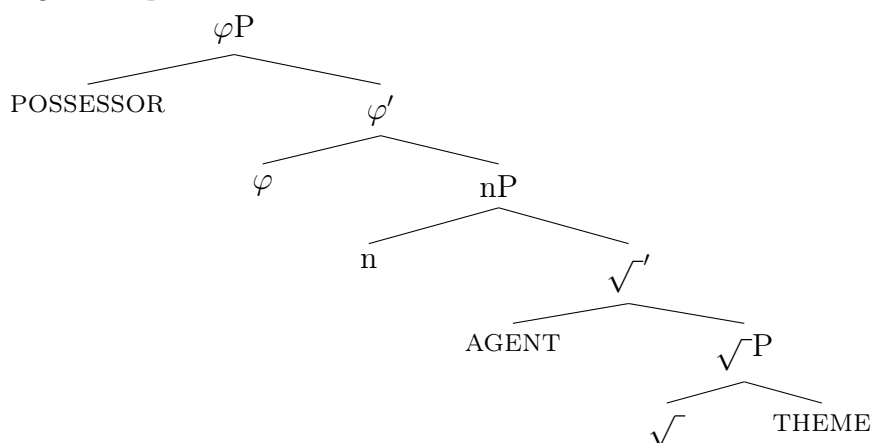
Recall also that the genitive asymmetrically c-commands the PP, as is demonstrated with binding below.

- (24) a. mynd Garp-s        af sjálfum sér  
       *picture Garp-GEN of self*        REFL  
       ‘Garp’s picture of himself’  
       b. greining Astrid-ar    á sjálfri sér  
       *analysis Astrid-GEN on self*        REFL  
       ‘Astrid’s analysis of herself’  
       c. mynd hvers lækni-s        af hundi-num        sínum  
       *picture each doctor-GEN of dog-ARTself’s*  
       ‘each doctor’s picture of his dog’  
       d. \*mynd lækni-ins        síns af hverjum hundi  
       *picture doctor-ART-GEN self’s of each dog*  
       ‘each dog’s picture belonging to their doctor’

This can be explained if the position (or at least the base position) of the genitive is not a uniform position. Assuming a UTAH-style analysis of TNP-internal thematic role assignment, I assume that different arguments are merged at different positions within the TNP (see e.g. Ticio (2003), Riqueros (2013) for a similar proposal in

Spanish). In case of multiple arguments only the highest one is realized as genitive. Lower ones are realized as PPs. The argument positions within the structure argued for here would be the following:

(25) Argument positions within the TNP



Unlike the participant genitives, there is a spell-out domain that contains both the possessor and the adjective, hence if ellipsis can target the complement of *n*, this asymmetry between different thematic roles is expected.

I also leave open the issue of why inflection and the article are not overtly realized. One option would be that either the root is frozen in its base position and the article and inflection, missing their host, are hence realized as null. Alternatively it may be possible that the root still undergoes head movement to *D*. However, since the root is marked for null spell-out, whatever it adjoins to will inherit this marking (see e.g. Lasnik 1990, Saab & Lipták 2015:98ff and references cited therein for some examples of such accounts). This could be achieved through, e.g. feature percolation (cf. Lieber 1992).

Stranding PPs alone appears to be marginally acceptable in definite TNPs, (26), but unacceptable in indefinite TNPs, (27).<sup>5</sup>

<sup>5</sup>In the survey, some speakers found Stranding PPs more acceptable with definite TNPs than indefinite. The indefinite TNPs were still low on the acceptability scale.

(26) \*~~A~~ N-GEN PP

\*furðulegu kenningar Gísla [um hljóðkerfisfræði]  
*bizarre theories Gísli.GEN about phonology*

This is expected given the restriction on the size of the focalized element.

Stranding an adjective and PP is unacceptable, as expected.<sup>6</sup>

(27) \*A N-GEN PP

\*áhugaverðu kenningar Gísla [um orðhlutahljóðkerfisfræði]  
*interesting theories Gísli.GEN about morphophonology*

This pattern is ruled out in two ways, i) the adjective and PP are in separate spell-out domains, and ii) the PP is too large to undergo focus movement to Spec-DP.

As expected, stranding a genitive and PP is unacceptable.

(28) \*~~A~~ N GEN PP

\*furðulegu kenningar Astridar [um orðhlutafræði]  
*bizarre theories Astrid.GEN about morphology*

This follows from the structural configuration argued for in this chapter. In order to elide the adjective, ellipsis must target  $\omega$ P, and for the genitive and PP to escape, the elements must undergo movement to Spec-DP. This movement is excluded due

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<sup>6</sup>It should be noted that one such sentence received a surprisingly high acceptance rate:

i. A N-GEN PP

?Sara myndi frekar vilja lesa löngu bókina hans Jónasar um Jóhannes  
*Sara would rather want read long book.ART PROP Jónas.GEN about Jóhannes*  
 Kjarval en Astrid myndi pottþétt velja [frægu \_ um Erró].  
*Kjarval but Astrid would definitely choose famous about Erró*  
 ‘Sara would rather read Jónas’ long book about Jóhannes Kjarval, but Astrid would definitely go for the famous one about Erró.’

A possible explanation for this anomaly is that this may be due to interference from the deep anaphora construction in (19).

to the size restrictions on focalized nominal in Spec-DP.

Finally, stranding all modifiers is unacceptable.

(29) \*<sub>A</sub>  $\bar{N}$  GEN PP

\*ótrúlegu ~~kenningar~~ Astridar [um orðhlutafræði]  
 unbelievable theories Astrid.GEN about morphology

This follows, again, from the proposal here. There is no single spell-out domain that contains the noun and excludes all other elements in the TNP, hence stranding all modifiers is ruled out.

In sum, although more work remains to be done on NP ellipsis in Icelandic, the data presented above appear to support the current proposal.

### 5.3 We've gotta get out of this place—Some notes on extraction

It has been extensively shown that extraction respects domains (see e.g. Chomsky (1965), Ross (1967), Chomsky (1986), Chomsky (2001) and many, many others for different iterations and implementations of such domains), hence it is worth while to examine the proposal proposed in this chapter in that respect. However, as Davies & Dubinsky (2003) show, the facts are complicated by intersecting factors, that need to be taken into account. This section offers some preliminary explorations into this domain.

Davies & Dubinsky (2003) argued that the availability for extraction out of nominals is dependent on the structure of the nominal as well as the type of element being extracted, namely that in English, only participants can be extracted. They contrast three different types of nominals and each of these types differs in terms of

extraction possibilities. The first class of nouns discussed are the *concrete nominals*. These have no participants and do not allow any extraction.

- (30) **Concrete nominals:** *no participant*  $\rightarrow$  *no extraction*

\*[ What sort of fur ]<sub>1</sub> was George looking for [ a dog with  $t_1$  ]?  
(Davies & Dubinsky 2003:16)

The second class of nouns consists of *result nominals*, which have non-argument participants. These allow extraction, but show definiteness effects, in that movement out of a definite DP is blocked.

- (31) **Result nominals:** *(non-argument) participant*  $\rightarrow$  *extraction + definiteness effects*

- a. Who<sub>1</sub> were the Phillies hoping for [ a victory/some victories over  $t_1$  ]?  
b. \*Who<sub>1</sub> were the Phillies hoping for [ the/that victory over  $t_1$  ]?

(Davies & Dubinsky 2003:16)

The third class of nouns are *complex event nominals*, which have argument participants. These allow extraction and show no definiteness effects.

- (32) **Complex event nominals:** *(argument) participant*  $\rightarrow$  *extraction, no DE*  
[ Which patient ]<sub>1</sub> did the med students participate in/observe/miss [ the operation on  $t_1$  ]?

(Davies & Dubinsky 2003:15)

Like English, Icelandic allows preposition stranding. Furthermore, pied piping and preposition stranding are, for the most part, equally viable options in Icelandic in the

verbal domain (see e.g. Maling & Zaenen 1985, Þráinsson 2007:153–154, 345–347).<sup>7</sup>

- (33) a. [um hvað]<sub>i</sub> ertu að tala t<sub>i</sub>?  
*about what are.you to speak*
- b. hvað<sub>i</sub> eru að tala [um t<sub>i</sub>?]  
*what are.you to speak about*  
 ‘What are you talking about?’

In the nominal domain, as we will see below, there is a slight preference for stranding the preposition.

Turning to the corresponding nominals in Icelandic, concrete and result nominals Icelandic pattern similarly to the corresponding English DPs discussed by Davies & Dubinsky. In case of a concrete reading of BÓK ‘book’, pied piping of a PP is ungrammatical. Stranding the preposition is marginally more acceptable.

- (34) a. \*[ Um hvað ]<sub>i</sub> sástu [ bók t<sub>i</sub> ] á borðinu?  
*about what saw.you book on table.the*  
 What did you see a book about on the table?
- b. ?\*Hvað<sub>i</sub> sástu [ bók [ um t<sub>i</sub> ] ] á borðinu?  
*what saw.you book about on table*

This improvement in acceptability may be due the preference for P-stranding in the nominal domain giving the impression that the sentence is less ungrammatical, similarly to Pied-piping degrading acceptability in English (cf. Chomsky 1986, Bošković 2013). With other PPs, the contrast can appear even greater.

<sup>7</sup>To my knowledge the two only differ in case of stylistic fronting, where only pied piping is possible (Hrafnbjargarson 2004).

- i. a. Allir sem [úr 'enni/henni]<sub>i</sub> drukku t<sub>i</sub> veiktust  
*all that from her.WEAK/her drank sick.PASS*  
 'Everyone that drunk out of it (the bottle) bacame sick'
- b. Allir sem 'enni/henni<sub>i</sub> drukku [úr t<sub>i</sub>] veiktust  
*all that her.WEAK/her drank from sick.PASS*  
 'Everyone that drunk out of it (the bottle) bacame sick'
- [adapted from Hrafnbjargarson 2004:112]



- (35) a. \*[Með hvað]<sub>i</sub> sástu [mann *t<sub>i</sub>*]?  
           *with what saw.you man*
- b. ??Hvað<sub>i</sub> sástu [mann [með *t<sub>i</sub>*]]?  
           *what saw.you man with*

Result nominals appear to behave the same way in Icelandic as they do in English in that extraction is possible from indefinite DPs, but not definite ones. Again, P-stranding is slightly more acceptable than pied piping.

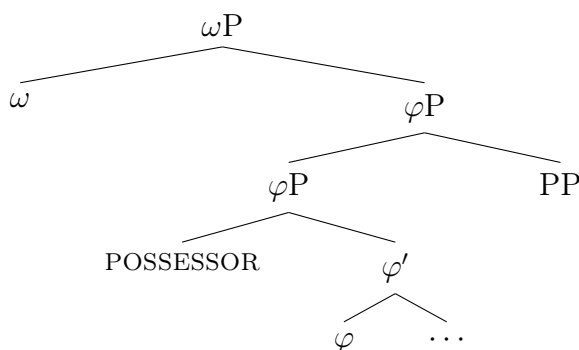
- (36) a. ?[ Á hverjum ]<sub>1</sub> vannstu [ sigur *t<sub>1</sub>* ]?  
           *on who won.you victory*  
           Who did you prove victorious over?
- b. Hverjum<sub>1</sub> vannstu [ sigur [ á <sub>1</sub> ] ]?  
           *who won.you victory on*
- c. \*Hverjum<sub>1</sub> vannstu [ sigurinn [ á <sub>1</sub> ] ]?  
           *who won.you victory.the on*

Following Bošković (2008b, 2012, 2013), these facts can be accounted for under the classical adjunct  $\sim$  argument distinction (see e.g. Chomsky 1986, Schütze 1995:and references cited therein), where participants essentially form a subset of what is classically referred to as argument. The extraction possibilities then follow from antilocality restrictions along the lines of e.g. Bošković (1994, 2005), where a moved element must cross a full phrase and not just a segment. First consider concrete nominals. When we examine the binding possibilities between we see that neither can a possessor bind the PP nor can said PP bind the possessor.

- (37) a. \*Ég sá [tösku [hvers barns]<sub>i</sub> [með bókunum sínum<sub>i</sub>]] í hrúgu.  
           *I saw bag each child with books.ART self in pile*  
           Intended: ‘I saw each child’s bag, filled with their respective books, in a pile’
- b. \*Ég sá [tösku sína<sub>i</sub> [með [hverju barni]<sub>i</sub>]] í hrúgu.  
           *I saw bag self with each child in pile.*  
           Intended: ‘I saw each child stuffed into their respective bags and these bags were in a pile.’

Recall that above it was argued that possessors were merged in Spec- $\varphi$ P, hence the inability to form a binding relation between the two elements could be taken to mean that the PP is adjoined to  $\varphi$ P. The two elements then mutually c-command each other (Reinhart 1983:23). The structural configuration would then be along the following lines:

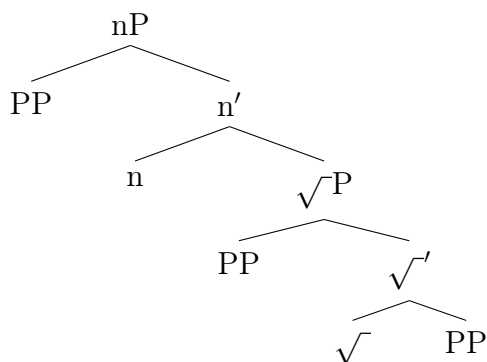
(38)



If, as is suggested in §3, that indefinite TNPs in Icelandic are not DPs, the inability to extract the PP in (38) follows.  $\omega$  is then the highest head in the extended projection of the root, and hence a phase. The PP in question would not cross a full phrase on its way to Spec- $\omega$ P, so its extraction is ruled out by antilocality.

In case of result nominals, the participant PP is merged as a complement of the root, or alternatively in different specifier positions within the TNP.

(39)



This is further supported by the asymmetrical binding relationship between these PPs and a genitive.

- (40) a. *Ég fylgdist með sigri [hvers nemanda]<sub>i</sub> á [óvini sínum]<sub>i</sub>*  
*I followed with victory each student on enemy self*  
 ‘I watched each student’s victory over their enemy.’
- b. \**Ég fylgdist með sigri [óvinar síns]<sub>i</sub> á [hverjum nemanda]<sub>i</sub>*  
*I followed with victory enemy self on each student*  
 Int’d: ‘I watched the each student’s enemy’s victory over each student.’

The extraction facts follow from this assumption. Since the participants are sufficiently distant from Spec-nP (and hence Spec-DP) to move through this position to escape the phase.

The definiteness effect in result nominals points to locality not being sufficient to account for extraction patterns. Given the low position of the PPs in question under the current proposal, antilocality is only relevant to their position relative to  $n^\circ$ , not  $D^\circ$ . Beyond  $n^\circ$ , antilocality in the form that is adopted here, does not predict further movement to be blocked. Furthermore, given the standard assumptions regarding the structure of the English DP, the two structures are identical.<sup>8</sup>

Specificity also appears to play a role in blocking extraction. Recall from above that indefinite possessor constructions have been argued to be specific, as is evidenced by them being excluded from existential constructions (Jónsson 2000).

- (41) a. *Það er bók á borðinu.*  
*there is book on table*  
 ‘There’s a book on the table.’
- b. \**Það er bók Astridar á borðinu.*  
*there is book Astrid.GEN on table*

Extraction of PPs is also blocked from indefinite possessive constructions.

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<sup>8</sup>I set aside for further research to what extent extraction is conditioned by semantic factors (cf. Fiengo & Higginbotham 1981, Davies & Dubinsky 2003) or whether these effects can be achieved under a purely structural account. As of this point, it does seem as if extra-syntactic factors play a role.

- (42) a. \* $[\text{Á hverjum}]_l$  horfðir þú á sigur **Jónasar**  $t_l$ ?  
           *on whom watched you on victory Jónas.GEN*
- b. ?? $[\text{hverjum}]_l$  horfðir þú á sigur **Jónasar**  $[\text{á } t_l]$ ?  
           *who watched you on victory Jónas.GEN on*

Hence both specificity and definiteness appear to play a role in the availability of extraction.

This brings us to an even more elusive question, i.e. why can genitives, numerals and adjectives not be extracted? No types of nominals allow for the extraction of genitives regardless of definiteness.<sup>9</sup>

(43) Concrete nominals

- a. \* $\text{Hvers}_l$  sástu  $[\text{bók } t_l]$  á borðinu?  
           *who.GEN saw.you book on table.ART*
- b. \* $\text{Hvers}_l$  sástu  $[\text{bókina } t_l]$  á borðinu?  
           *who.GEN saw.you book.ART on table.ART*

(44) Result nominals

- a. \* $\text{Hvers}_l$  horfðir þú á  $[\text{sigur } t_l \text{ á Svíum}]$ ?  
           *who.GEN watched you on victory on Swedes*
- b. \* $\text{Hvers}_l$  horfðir þú á  $[\text{sigurinn } t_l \text{ á Svíum}]$ ?  
           *who.GEN watched you on victory.ART on Swedes*

Likewise, adjectives are not extractable, regardless of definiteness or type of nominal.

(45) Concrete nominals

- a. \* $\text{Rauðan}_i$  sá ég  $[\text{ } t_i \text{ bíl } ]$ .  
           *red saw I car*  
           Intended: ‘I saw a red car.’
- b. \* $\text{Rauða}_i$  sá ég  $[\text{ } t_i \text{ bíl-inn } ]$   
           *red saw I car-ART*  
           Intended: ‘I saw the red car.’

<sup>9</sup>This is also well attested in various languages, even languages that do allow for extraction of non-genitive pronominal possessors, such as Bosnian-Serbian-Croatian (see e.g. Bobaljik & Wurmbrand 2012, Bošković 2014 and references cited therein).

## (46) Result nominals

- a. \*Flókinni<sub>i</sub> fylgdist ég með [ *t<sub>i</sub>* aðgerð ].  
*complicated observed I with operation*  
 Intended: ‘I observed a complicated operation.’
- b. \*Flóknu<sub>i</sub> fylgdist ég með [ *t<sub>i</sub>* aðgerð-inni ].  
*complicated observed I with operation-ART*  
 Intended: ‘I observed the complicated operation.’

As we have established above, these elements cannot be assumed to be absolutely immobile, as both genitives and adjectives do move within the DP.

- (47) a. hinar þrjár frægu myndir (hennar) Astrid-ar  
 ART *three famous pictures* PROP *Astrid-GEN*
- b. Astridar þrjár frægu myndir  
*Astrid.GEN three famous pictures*  
 ‘Astrid’s three famous pictures’
- (48) a. myndir-nar þrjár frægu  
*pictures-ART three famous*
- b. frægu myndir-nar þrjár  
*famous pictures-ART three*  
 ‘the three famous pictures’

Also, as in German (Wurmbrand 2008, Bobaljik & Wurmbrand 2012), genitives in Icelandic can still undergo Quantifier Raising out of the DP despite their inability to be extracted overtly, as is shown in (49).

- (49) [Einn stúdent] borðaði [kanínu [hvers barns]]  
*one student ate rabbit each child*
- a. ‘There is a single student who ate all the bunnies.’  $\exists \gg \forall$
- b. ‘There are multiple students, each of which ate one bunny.’  $\forall \gg \exists$

Under the structural configuration of the DP proposed here (or elsewhere for that matter), this cannot be explained by antilocality.

As has been discussed by Bošković (2005) and subsequent work, there are considerable differences in the syntax of TNPs between languages that have definite articles and those who do not. One of which being the availability of left branch extraction (LBE), i.e. that only languages without definite articles allow LBE.<sup>10</sup> Consider the following example from Bosnian-Serbian-Croatian (BSC).

- (50) a. Čijeg<sub>i</sub> si vidio [t<sub>i</sub> oca]?  
           *whose are seen father*  
           ‘Whose father did you see?’
- b. Kakva<sub>i</sub> si kupio [t<sub>i</sub> kola]?  
           *what-kind-of are bought car*  
           ‘What kind of car did you buy?’

[Bošković 2005:2]

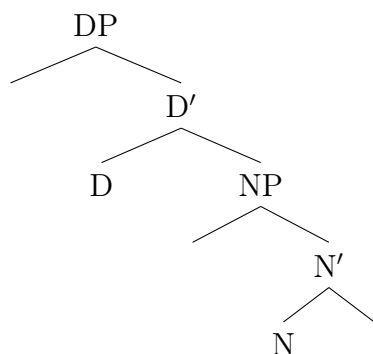
Bošković (2005 et seq.) attributes the difference between the two types of languages to the presense/absense of D. He argues that prenominal modifiers, i.e. adjectives, demonstratives, pronominal possessors, are adjoined to NP. If D is present, DP is a phase and LBE is blocked by antilocality. The only escape from D is through Spec-DP, but the prenominal modifiers are adjoined to its complement. If D is absent, NP is a phase, however, the prenominal modifiers are already at the edge of the phase, hence LBE becomes available.<sup>11</sup>

Bošković (2005 et seq.) assumes a minimal structure for the DP, where an NP is dominated by a DP with little or no functional structure in between.

<sup>10</sup>Note that this was intended as a one-way correlation Bošković (2013).

<sup>11</sup>There are other factors that come into play wrt. LBE. For instance, agreement between the adjective and noun is often required Bošković (2012), Bošković & Şener (2014).

(51)



However, as was established above, a minimal structure such as (51) is not sufficient to account for the structure of the Icelandic DP. The prenominal elements would be predicted to be immobile, excluding Pattern I, and accounting for the postnominal sphere would prove difficult, since there is only one position postnominally. The Icelandic DP requires additional structure and hence necessitates additional mechanism to limit extraction.

Reuland (2011), Despić (2011) and Talić (2015a,b) have pointed out that languages with cliticized/affixal definiteness marking often fall somewhere in between—patterning in some respects with article languages, and patterning with articleless languages in others. For instance, some languages with clitic/affixal articles allow for reflexive possessive pronouns, which are not found in languages with articles (see Despić 2011). Languages with clitic/affixal articles can also allow for extraction of intensifiers from adjectives in predicative position, which is also not allowed in languages with articles (see Talić 2015a,b).

It is possible that the TNP-internal mobility of the genitives and adjectives is another instance of this pattern, where languages with clitic/affixal articles fall in between languages with articles and languages without articles. Languages with definite articles disallow movement to Spec-DP and subsequently Left Branch Extraction, languages without articles lack the DP layer, hence allowing for LBE. This suggests that Icelandic comes in between by allowing movement to Spec-DP, but not

allowing movement out further. Movement to Spec-DP is only available to focalized items in Icelandic, hence I suggest that Spec-DP in Icelandic is a Criterial Freezing Position (e.g. Rizzi 2006, Bošković 2008a). Once an element has moved to Spec-DP it is then frozen for the purposes of other types of movement. This position is only available to elements that can be interpreted as focus in this position, namely adjectives and possessors.

Finally, unlike English, complex event nominals in Icelandic do not allow any extraction.

- (52) a. \* $[ \text{Á hverju} ]_1 \text{ gerðu þeir } [ \text{tíðar aðgerðir } t_1 ]?$   
           *on what performed they frequent operations*  
           What did they frequently operate on?
- b. \* $\text{Hverju}_1 \text{ gerðu þeir } [ \text{tíðar aðgerðir } [ \text{á } t_1 ] ]?$   
           *what did they frequent operations on*

Given the common assumption that complex event nominals involve a complex verbal structure (e.g. Alexiadou 2009), there are a number of possibilities as to what may lie beneath this contrast.

On the one hand, it is possible that the additional structure introduces additional semantic factors that come into play. Davies & Dubinsky note that certain *-ing* nominalizations that, despite being complex event nominals, do not allow extractions in the presence of a determiner or a possessor.<sup>12</sup>

- (53) a. \* $[ \text{Which patient} ]_1 \text{ did you watch } [ \text{the/his examining of } t_1 ]?$   
       b. \* $[ \text{Which patient} ]_1 \text{ did you watch } [ \text{his examining } t_1 ]?$   
       c.  $[ \text{Which patient} ]_1 \text{ did you watch } [ \text{the examination of } t_1 ]?$

(Davies & Dubinsky 2003:15 fn.6)

<sup>12</sup>Note that there are also some known cross-linguistic differences in this respect. In ,e.g., Spanish it is possible to extract a THEME argument out of a definite DP in the presence of the definite article, but not in the presence of demonstratives (Ticio 2005).



Davies and Dubinsky suggest that nominals such as (53a) and (53b) involve a more intricate clausal structure, which is lacking in (53c). This additional clausal structure then introduces the definiteness effects observed with result nominals. This could mean that Icelandic complex event nominals are only of the type in (53a) and never of the type in (53b) or (53c).

The question of whether Icelandic allows nominals of the type in (53b) is straightforwardly answered. It does not.

- (54) a. Jónas skoðaði sjúklinginn.  
*Jónas.NOM examined patient.ACC.ART*  
 ‘Jónas examined the patient.’
- b. \*skoð-un Jónasar sjúklinginn  
*examine-n° Jónas.GEN patient.ACC.ART*
- c. skoð-un Jónasar á sjúklingnum  
*examine-n° Jónas.GEN on patient.DAT.ART*  
 ‘Jónas’ examination of the patient’

Following Davies & Dubinsky, this could be taken to mean that Icelandic does not allow for structurally poor complex event nominals. Alternatively, the ungrammaticality of (54b) could be taken to mean that complex event nominals in Icelandic are structurally poorer than the corresponding nominals in English. If it is the case that the lack of extraction correlates with a lack of structure, an antilocality account becomes a possibility. (54b) could be unavailable because the necessary structure to preserve accusative case on the object is missing. Either of these two options raises questions regarding the licensing of elements in such constructions and their positions, which in turn, gives rise to questions regarding locality. Distinguishing between the two options will, however, require a more intricate look into these nominals than fits the scope of this dissertation, so I will leave that for future research.

To sum up this subsection, we have seen that although antilocality seems to play

a role in limiting extraction possibilities from within the DP, antilocality alone is not sufficient. It appears that additional factors, such as definiteness and specificity as well as limitations on Spec-DP, which induces a criterial freezing effect for adjectives and possessors, appear to play a role in the availability of extraction.

## 5.4 Summary

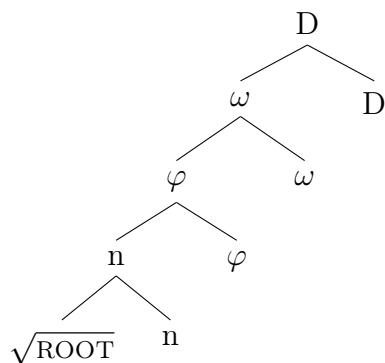
Preliminary explorations into domain sensitive phenomena discussed in this paper appear to support the domains established in chapter 3. First, the bound article was argued to be a clitic, whose affix-like behaviour is due to it being a part of the extended projection of the root, hence contained within the morphophonological domain. Second, ellipsis appears to target either  $\sqrt{P}$  or  $\omega P$ , as is expected. Third, for extraction, (anti)locality constraints appear to account for movement possibilities of certain elements, however, in certain cases they do not. In case of non-participants, their immobility follows from their positions as adjuncts. With regards to definiteness effects and the inability to extract possessors and adjectives, point to additional factors coming into play, such as definiteness and specificity as well as properties of D.

## Appendix to chapter 5: Pilot study on Ellipsis

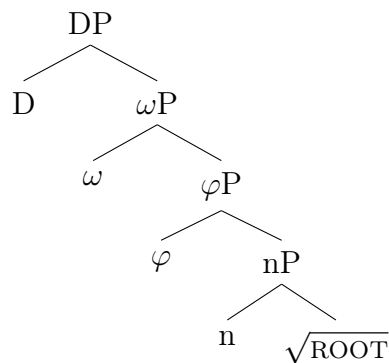
### Expectations

Given the noun structure and domains therein argued for in Harðarson (2016) as well as above, coupled with assumptions regarding the architecture of grammar, the structure of the noun phrase is expected to mirror the structure of the noun (cf. Baker 1988). For the sake of brevity, the structure below includes D.

(55)



(56)



The domains argued for in Harðarson (2016) were  $n$  for contextual allomorphy (following many) and the highest projection for the domain of morphophonology. The question is then whether these elements also form domain boundaries for other (traditionally) syntactic phenomena. Given that ellipsis has been argued to target such domains (Gengel 2006, 2009, Gallego 2009, van Craenenbroeck 2010, Wurmbrand 2011, 2012a,b, 2017, 2012c, 2014b, Bošković 2014), ellipsis may prove to be a good candidate for such inquiry.

## The experiment

The experiment consisted of 36 sentences differing in definiteness, number of modifiers and parts elided. Each sentence was preceded by a context intended to elicit the test sentence. The participants were then asked to evaluate the sentence on a seven point Likert scale and given the option of providing additional comments. 12 participants were recruited through Facebook.com and provided with a link to google document containing the survey.

Following e.g. Alexiadou (2009), result nominals and concrete nominals are not expected to differ structurally in crucial ways. Hence, although most of the sentences include result nominals, some included concrete nominals. They were not expected to pattern differently in this respect.

To control for potential scale bias, the results were z-score transformed using

R-software (see Schütze and Sprouse 2013) and the mean rating calculated for each sentence.

Two conditions were erroneously repeated and hence two others not included. Hence a second questionnaire was sent to the participants containing the two missing conditions. In the summary below, the results for these two conditions are calculated from the raw scores rather than z-scores. Those numbers are given in italics below.

## Results

Starting with DPs that are only modified by a PP, these were judged to be generally unacceptable both in definite and indefinite DPs. Given the small sample size and thus the strong influence of outliers, the results are given as both means and medians ([mean/median]).

- (57) **Indefinite: N PP** [-0,56/-0,75]

Jón skrifaði skýrslu um kardimommumálið á meðan lögreglustjórinn  
*Jón wrote report about cardamom.case on while police.chief*  
 las yfir [\_ um skinkuþjófnaðinn].  
*read over about ham.theft*  
 ‘Jón wrote a report about the cardamom case while the chief read over one  
 about the ham theft.’

- (58) **Definite: N PP** [-0,83/-0,92]

Jón setti myndina af forsetanum á borðið en Sara hengdi [\_  
*Jón put picture.ART of president.ART on table.ART but Sara hung*  
 af kúnni] á vegginn.  
*of cow.ART on wall.ART*  
 ‘Jón put the picture of the president on the table but Sara hung the one of  
 the cow on the wall.’

In DPs containing adjectives and PPs, there is a difference between definites and indefinites although in both cases we observe an ascending degree of acceptability

in terms of the three ellipsis patterns tested. The sentences where the adjective and noun are elided to the exclusion of the PP were the least acceptable in both definites and indefinites. The sentences where only the noun was elided were somewhat more acceptable. Both groups of sentences were much less acceptable with a definite DPs than they were with indefinite DPs. The sentences where only A survives were the most acceptable, and here the definite DPs were more acceptable than the indefinite.

## (59) Indefinite: A N PP

- a. \_ PP [0,14/-0,05]

Astrid skrifaði fræga bók um trjárækt í Austur-Húnavatnssýslu  
*Astrid wrote famous book about forestry in East-Húnavatnssýsla*  
 en Jónas ritrýndi [\_ um millistríðsárin á Siglufirði].  
*but Jónas reviewed about between.war.year.ART on Siglufjörður*  
 ‘Astrid wrote a famous book about forestry in Eastern Húnavatnssýsla,  
 but Jónas reviewed a famous one about the years between WWI and  
 WWII in Siglufjörður’

- b. A \_ PP [0,21/0,16]

Jón skrifaði stutta bók um brot á bindilögmáli B á  
*Jón wrote short book about violation on binding.principle B on*  
 meðan Astrid las yfir [langa \_ um brottfall innan nafnliða].  
*while Astrid read over long about ellipsis within noun.phrases*  
 ‘Jón wrote a short book about Binding Principle B violations while  
 Astrid read over a long one about NP ellipsis’

- c. A \_ i [0,33/0,39] — ii[1,01/0,7] — [0,67/0,5]

- i Jónas var frekar til í langa heimildamynd um kalda stríðið en  
*Jónas was rather to in long documentary about cold war.ART but*  
 Astrid nemti ekki í meira en [stutta \_].  
*Astrid could.be.bothered not in more than short*  
 ‘Jónas was in the mood for a long documentary on the Cold War, but  
 Astrid only wanted to watch a short one.’
- ii Jón skrifaði stutta bók um setningafræði en lét nemendur  
*Jón wrote short book about syntax but had his*  
 sína lesa [langa \_].  
*students read long*  
 ‘Jón wrote a short book about syntax, but had his students read a long  
 one.’

(60) **Definite: A N PP**

- a.
- \_ PP**
- [-1,4/-1,37]

Ásgeir setti litlu myndina af forsetanum á borðið en Silvía  
*Ásgeir put little picture.ART of president on table.ART but Silvía*  
 hengdi [\_ af kúnni] á vegginn.  
*hung of cow.ART on wall.ART*  
 ‘Ásgeir put the little picture of the president on the table but Silvía  
 hung the little one of the cow on the wall.’

- b.
- A \_ PP**
- [-0,17/-0,34]

Jón setti litlu myndina af forsetanum á borðið en  
*Jón put little picture.ART of president.ART on table.ART but*  
 Ágústa hengdi [stóru \_ af kúnni] á vegginn.  
*Ágústa hung big of cow on wall.ART*  
 ‘Jón put the little picture of the president on the table, but Ágústa  
 hung the big one of the cow on the wall.’

- c.
- A \_**
- [0,94/1,23]

Sara setti litlu myndina af kúnni á borðið en Jónas  
*Sara put little picture.ART of cow.ART on table.ART but Jónas*  
 hengdi [stóru \_] á vegginn.  
*hung big on wall.ART*  
 ‘Sara put the little picture of the cow on the table but Jónas hung the  
 large one on the wall.’

Turning to DPs that are only modified by a possessor, POSS surviving ellipsis appears to be more acceptable in indefinite DPs, than in definite. However, a number of participants noted that sentences in which POSS is the sole survivor, would be more acceptable in the absence of the proprial article, as is the case with fronted POSS .

- (61) **Indefinite: N POSS** [0,91/0,99]

Símon aðhyllist pottþétt kenningu Jónasar en Garpur vill samt  
*Símon adheres definitely theory Jónas.GEN but Garpur wants still*  
 skoða [\_ Astridar] aðeins betur.  
*examine Astrid.GEN a.little better*  
 ‘Símon definitely adheres to Jónas’ theory, but Garpur still wants to look  
 into Astrid’s theory.’

- (62) **Definite: N POSS** [-0,08/-0,1]

Jónas hefur bækurnar hans Laxness á bókahillunum í  
*Jónas has books.ART PROP Laxness.GEN on book.shelves.ART in*  
 stofunni en geymir [\_ hans Arnalds] á náttborðinu.  
*living.room.ART but keeps PROP Arnaldur.GEN on night.table.ART*  
 ‘Jónas likes to keep books by Laxness on the book shelves in the living room,  
 but he keeps the ones by Arnaldur on his nightstand.’

In the presence of adjectives, stranding POSS appears to be marginally acceptable, but any other logical pattern is not.

- (63) **Indefinite: A N POSS**

- a. **\_ POSS** [0/0,1]

Ég held að Astrid hafi lesið nýja bók kennara síns á  
*I think that Astrid has read new book teacher.GEN REFL on*  
 sama tíma og hún skrifaði ritdóm um [\_ Halldórs].  
*same time and she wrote review about Halldór.GEN*  
 ‘I think Astrid may have read her teacher’s new book while she was  
 writing a review about Halldór’s new one.’

- b. **A \_ POSS** [-0,73/-0,89]

Jónas veit ekki alveg hvort hann trúi nýrri skýrslu  
*Jónas knows not completely whether he believes new report*  
 Velferðarráðuneytisins en Astrid leggur meiri trú á [gamla \_  
*welfare.ministry.GEN but Astrid lays more faith in old*  
 Hagfræðistofnunna].  
*economy.institute.GEN*  
 ‘Jónas isn’t quite sure if he believes the new report from the Ministry of



Welfare, but Astrid puts more faith in an old report from the Institute of Economics.’

- c. **A**      [-0,53/-0,89]

Allir eru að missa sig yfir nýrri kenningu Astridar og á  
*all are to lose REFL over new theory Astrid.GEN and on*  
 sama tíma rifja sumir upp [gamla     ].  
*same time revisit some up old*  
 ‘Everybody’s losing themselves over Astrid’s new theory, but at the  
 same time some people revisit one of her old ones.’

In case of definite DPs, the pattern is different. Stranding POSS appears to be somewhat acceptable. Stranding A and POSS is less so. Stranding A appears to be the most acceptable option.

(64) **Definite: A N POSS**

- a.      **POSS** [0,21/0,26]

Sigga passar alltaf upp á að hafa litla hundinn hans  
*Sigga watches always up on to have little dog.ART PROP*  
 Jóns frammi en leyfir [     hennar Astridar] að vera hérna  
*Jón.GEN in.forward but allows PROP Astrid.GEN to be here*  
 inni hjá mér.  
*in with me*  
 ‘Sigga always makes sure to keep Jón’s little dog in the hallway, but  
 allows Astrid’s dog to stay in here with me.’

- b. **A**      **POSS** [-0,06/-0,09]

Jónas passar alltaf upp á að hafa litla hundinn hans  
*Jónas watches always up on to have little dog.ART PROP*  
 Sigga frammi en Jónas leyfir [stóra      hennar Astridar]  
*Siggi.GEN in.forward but Jónas allows big PROP Astrid.GEN*  
 að vera inni hjá sér.  
*to be here in with REFL*  
 ‘Jónas always makes sure to keep Siggi’s little dog in the hallway, but  
 allows Astrid’s big one to stay in here with him.’

- c.     **A**        [1,11/1,14]
- Jónas er með nýju bókina hans Rax á stofuborðinu en  
*Jónas is with new book.ART PROP Rax on coffee.table.ART but*  
 hann geymir [gömlu       ] inni á skrifstofu.  
*he keeps old in on office*  
 ‘Jónas has Rax’s new book on the coffee table, but keeps the old one  
 in his office.’

When both POSS and PP are present in the structure, somewhat differing patterns occur between definite and indefinite DPs. First, stranding only PP appears to be fairly unacceptable in both definite and indefinite DPs. Stranding both is somewhat marginal in indefinites, but stranding only POSS is highly acceptable. In case of definites, stranding POSS alone or both POSS and PP seem to be similarly acceptable options.

## (65) Indefinite: N POSS PP

- a. \_ POSS PP [-0,17/-0,27]

Ég held að Astrid hafi lesið bók kennara síns um  
*I think that Astrid has read book teacher.GEN REFL about*  
 fallmörkun í hindí áður en hún ritrýndi [\_  
*case.marking in Hindi before than she reviewed*  
 háskólarektors um fornafnabeygingu í írsku].  
*university.rector.GEN about pronoun.declension in Irish*  
 ‘I think Astrid may have read her teacher’s book about case marking in  
 Hindi before she reviewed the rector’s book about pronoun declension  
 in Irish.’

- b. \_ PP [-0,69/-0,78]

Margir hafa verið að tala um kenningu Jónasar um  
*many have been to talk about theory Jónas.GEN about*  
 andlagsstökk en fáir þekkja [\_ um bindingu].  
*object.shift but few know about binding*  
 ‘Many have been talking about Jónas’ theory about Object Shift but  
 few people know about his theory of binding.’

- c. \_ POSS \_ [0,78/1,11]

Margir hafa verið að tala um kenningu Astridar um  
*many have been to talk about theory Astrid.GEN about*  
 loftslagsbreytingar en færri virðast vita af [\_ Garðars \_].  
*climate.change but fewer seem know of Garðar.GEN*  
 ‘Many have been talking about Astrid’s theory about Climate Change  
 but few people know about the one of Garðar.’

(66) **Definite: N POSS PP**

- a. **\_\_ POSS PP** [0,4/0,32]
- Skýrslan hans Jóhanns um áhrif loftslagsbreytinga á  
*report PROP Jóhann.GEN about effects climate.change on*  
 lífríki Mývatns vakti mun meiri athygli en [<sub>\_\_</sub> hans  
*ecosystem Mývatn woke much more attention than PROP*  
 Árna um brottkast].  
*Árni.GEN about discard*  
 ‘Jóhann’s report on the effects of climate change on the ecosystem of  
 Mývatn, received much more attention than Árni’s report on discard.’
- b. **\_\_ PP** [-0,35/-0,44]
- Jónas keypti bækurnar hennar Astridar um hvalveiðar  
*Jónas bought books.ART PROP Astrid.GEN about whaling in*  
 í suðurhöfum en Sara vildi frekar [<sub>\_\_</sub> um matjurtarækt].  
*the south.seas but Sara wanted rather about herb.cultivation*  
 ‘Jónas bought Astrid’s books about whaling in the south seas, but Sara  
 wanted Astrid’s books on herb cultivation.’
- c. **\_\_ POSS \_\_** [0,31/0,42]
- Bækurnar hans Jóns um hvalveiðar í suðurhöfum voru  
*books.ART PROP Jón.GEN about whaling in south.seas were*  
 allar ónýtar en [<sub>\_\_</sub> hans Sverris <sub>\_\_</sub>] sluppu frekar vel.  
*all ruined but PROP Sverrir escaped rather well*  
 ‘Jón’s books about whaling in the south seas were all ruined, but Sver-  
 rir’s ones escaped pretty well.’

When all three modifiers are present, the pattern of acceptability is somewhat reminiscent of what we observed above. Note that as mentioned above, the mean and median for (67e) and (67g) are calculated from the raw data and not z-scores. First, stranding both POSS and PP is unacceptable, whether A is also stranded or not. Stranding PP alone is also unacceptable. Stranding both PP and A appears to be marginally acceptable. The most acceptable pattern is the one where either only A or POSS is stranded.

## (67) Indefinite: A N POSS PP

a. \_ POSS PP i [-0,77/-0,74] — ii [-0,2/-0.09] — [-0,65/-0,74]

- i Ég held að Astrid hafi gagnrýnt nýja bók kennara síns um  
*I think that Astrid has critiqued new book teacher REFL about*  
 flugsamgöngur á Íslandi en Jónas hafi skrifað um [\_  
*flying on Iceland but Jónas has written about*  
 háskólarektors um Brigitte Nielsen].  
*university.rector.GEN about Brigitte Nielsen*  
 ‘I think Astrid may have critiqued her teacher’s new book about flying  
 in Iceland, but Jónas may have written about the rector’s new book  
 about Brigitte Nielsen.

- ii Fjölmiðlar hafa mikið fjallað um nýja skýrslu  
*media have much reported about new report*  
 Velferðarráðuneytisins um bárujárnsklæðningar en flestir hafa  
*welfare.ministry.ART.GEN about corrugated.iron but most have*  
 látið [\_ Hagfræðistofnunnar um terrakottaflísar] alveg eiga  
*let economy.institute about terra.cotta.tiles completely own*  
 sig.  
 REFL  
 ‘The media have covered the ministry of welfare’s new report about cor-  
 rugated iron extensively, but most have completely ignored the Econ-  
 omy Institute’s report on terra cotta tiles.’

b. \_ PP [-0.56/-0.63]

- Margir hafa verið að tala um nýja kenningu Jónasar  
*many have been to talk about new theory Jónas.GEN about*  
 um andlagsstökk en fáir þekkja [\_ um bindingu].  
*object.shift but few know about binding*  
 ‘Many have been talking about Jónas’ new theory on Object Shift, but  
 few people know about his theory on binding.’

- c. **A \_ POSS PP** [-0,97/-0,94]
- Garpur hljóðsetti langa heimildamyndaseríu Kára  
*Garpur sound.mixed long documentary.series Kári.GEN*  
 Ásmundssonar um sögu kartöflunnar en Astrid klippti  
*Ásmundsson.GEN about history potato.ART.GEN but Astrid edited*  
 [stutta \_ Jónasar um gæludýrahald í Vatnsmýrinni].  
*short Jónas.GEN about pet.keeping in Vatnsmýri*  
 ‘Garpur sound mixed Kári Ásmundsson’s long documentary series about  
 the history of the potato, but Astrid edited Jónas’ short one about pet  
 keeping in Vatnsmýri.’
- d. **A \_ PP** [0,12/0,14]
- Jónasi líkar ný kenning Garps um uppruna  
*Jónas likes new theory Garpur.GEN about origin*  
 indóevrópumanna en Astrid hefur meiri áhuga á [gamalli \_  
*indoeuropeans.GEN but Astrid has more interest on old*  
 um hvað gerðist raunverulega á Atlantis].  
*about what happened really on Atlantis*  
 ‘Jónas like Garpur’s new theory about the origins of Indo-Europeans,  
 but Astrid has more interest in his old one about what really happened  
 in Atlantis.’
- e. **A \_ POSS \_** [2,6/2]
- Fjölmíðlar hafa mikið fjallað um nýja skýrslu  
*media have much covered about new report*  
 Velferðarráðuneytisins um bárujárnsklæðningar en flestir hafa  
*welfare.ministry.ART about corrugated.iron.siding but most have*  
 látið [gamla \_ Hagfræðistofnunnar \_] alveg eiga sig.  
*let old economics.institute completely have REFL*  
 ‘The media has discussed the new report by the ministry of welfare  
 about corrugated iron sidings, but most have ignored an old one by the  
 institute of economics.’

- |    |      |             |
|----|------|-------------|
| f. | POSS | [0.36/0.24] |
|----|------|-------------|

Margir hafa verið að tala um ferskar hugmyndir Garps  
*many have been to talk about fresh ideas Garpur.GEN*  
um lausnir samfélagsvandamála en fáir hafa heyrt [\_ um  
*about solutions society.problems but few have heard about*  
Jónasar \_].  
*Jónas.GEN*

‘Lots of people have been talking about Garpur’s fresh ideas about solving society’s problems, but few people have heard about Jónas’.

80. A  $[5/5.5]$

Jón átti erfitt með furðulegar kenningar Gísla um  
*Jón had difficult with bizzare theories Gísli.GEN about*  
 setningafræði en var alltaf glaður að sjá [góðar \_].  
*syntax but was always happy to see good*

‘Jón always had some difficulties with Gísli’s bizzare theories about syntax, but he was always happy to see good ones.’

With definite DPs, ellipsis patterns stranding both POSS and PP (with or without A) as well as stranding PP alone seem to receive a somewhat higher rate of acceptability than the corresponding patterns in indefinites. As above, stranding adjective and PP appears to be somewhat acceptable. Stranding POSS alone appears to be somewhat acceptable as well. The least acceptable pattern is the one where both POSS and A are stranded. The most acceptable pattern is the one where only A is stranded.

(68) **Definite: A N POSS PP**

- a.
- \_ POSS PP**
- [0.2/-0.05]

Fræga skáldsagan hennar Jónínu um Bert Schäfer hlaut  
*famous novel.ART PROP Jónína.GEN about Bert Schäfer received*  
 einróma lof gagnrýnenda en [\_ hennar Ágústu um  
*unanimous praise critic.GEN but PROP Ágústa.GEN about*  
 Pálinu Þorvarðardóttur] var ekki jafn vel tekið.  
*Pálína Þorvarðardóttir.GEN was not equally well taken.*  
 ‘Jónína’s famous novel about Bert Schäfer received critical acclaim, but  
 Ágústa’s novel about Pálína Þorvarðardóttir was not as well received.’

- b.
- \_ PP**
- [0.02/0.22]

Ég held að við eigum eftir að bíða jafn lengi eftir nýju  
*I think that we will after to wait equally long after new*  
 bókinni hans Arnalds um Erlend og við þurftum að  
*book.ART PROP Arnaldur.GEN about Erlendur and we needed to*  
 bíða eftir [\_ um Marion].  
*wait after about Marion*  
 ‘I think we’ll have to wait as long for Arnaldur’s new book about Er-  
 lendur as we had to wait for his new one about Marion.’

- c.
- A \_ POSS PP**
- [-0.01/-0.09]

Nýja myndin hennar Söru um köngulóarmanninn  
*new picture.ART PROP Sara.GEN about spiderman.ART*  
 hlaut góða aðsókn en [gamla \_ hennar Ágústu um Titanic]  
*received good attendance but old PROP Ágústa about Titanic*  
 fékk betri dóma.  
*recieved better reviews*  
 ‘Sara’s new movie about Spiderman did well at the box office but  
 Ágústa’s old one about the Titanic get better reviews.’



d. **A \_ PP** [0.36/0.3]

Sara myndi frekar vilja lesa löngu bókina hans Jónasar  
*Sara would rather want read long book.ART PROP Jónas.GEN*  
 um Jóhannes Kjarval en Astrid myndi pottþétt velja [frægu \_  
*about Jóhannes Kjarval but Astrid would definitely choose famous*  
 um Erró].  
*about Erró*  
 ‘Sara would rather read Jónas’ long book about Jóhannes Kjarval, but  
 Astrid would definitely go for the famous one about Erró.’

e. **A \_ POSS \_** [-0.76/-0.6]

Lélegu bækurnar hans Árna um Grenivíkurmorðin eiga  
*bad books.ART PROP Árni.GEN about Grenivík.murders will*  
 alltaf eftir að seljast betur en [góðu \_ hennar Ástu \_].  
*always after to sell better than good PROP Ásta.GEN*  
 ‘Árni’s bad books about the Grenivík murders will always sell better  
 than Ásta’s good ones.’

f. **\_ POSS \_** [0.23/0.3]

Langa myndin hans Baltasars um Grace Jones er  
*long picture.ART PROP Baltasar.GEN about Grace Jones is*  
 líkleg til að vinna einhver verðlaun en [\_ hans Kára \_] á  
*likely to to win some awards but PROP Kári.GEN will*  
 samt eftir að njóta mun meiri aðsóknar.  
*still after to enjoy much more attendance*  
 Baltasar’s long movie about Grace Jones is likely to win some awards,  
 but Kári’s will probably do better at the box office.’

g. **A \_** [1.15/1.35]

Nýja bókin hennar Sigríðar um millistríðsárin  
*new book.ART PROP Sigríður.GEN about between.war.years.ART*  
 hefur hlotið mjög góða dóma en [gamla \_] seldist samt miklu  
*has received very good reviews but old sold still much*  
 betur.  
*better*  
 ‘Sigríður’s new book about the years between WWI and WWII has  
 received good reviews, but her old one sold much better.’

To sum up, stranding PPs is usually unacceptable with indefinites, but marginally

acceptable when an adjective is also stranded. It is unacceptable to simultaneously strand both PP and POSS , whereas it is acceptable to strand POSS alone. It is also unacceptable to strand both A and POSS , whereas either of the two can be stranded on their own.

# Chapter 6

## Conclusions

To sum up, in chapter 2, I accounted for the bracketing restrictions observed with Icelandic compounds depending on whether the non-head element was inflected or not. I related the restriction to the structure of the noun, and proposed the Matching Condition, stating that compounding must merge elements of the same syntactic category. I argued that a simple noun consists of four morphemes: an acategorial root, a category node,  $n^\circ$ , a node necessary for the realization of inflection,  $\varphi^\circ$ , and finally,  $\omega^\circ$ , which encodes reference.

In chapter 3, we observed that elements within the compound form multiple morphophonological domains, namely that modifiers form separate domains to the exclusion of the head. This results in a bracketing paradox when considering the structure proposed in chapter 2. A solution to this paradox was proposed where the morphophonological domains were defined contextually by the extended projection of the root. This yields the effects of a bracketing paradox where the larger domain of the head happens to contain smaller domains of the modifiers.

This approach was extended to classical bracketing paradoxes and Germanic particle verb constructions, replacing older proposals involving structure manipulation. The structure is interpreted at the interfaces under the conditions in (33) and

(34) in Chapter 3, yielding the effects of two different structures, hence resulting in any structure manipulation being unnecessary. This approach was also shown to potentially derive the clitic/affix distinction.

Finally, I also showed that domains of meaning are observed in compounds as well. Specifically, taking exocentricity as a case of idiosyncratic meaning, exocentric compounds with compositional meaning are only possible at the stem level. Exocentric compounds with non-compositional meaning, however, are found at either inflectional or stem level.

In chapter 4, I provided an overview of the possible and impossible orders of elements within the Icelandic DP, where four patterns arise. Following works that realalyze Greenberg’s Universal #20 as a condition on hierarchical organization, I argue that Pattern II, although not the unmarked pattern, is the base from which all other patterns are derived. Furthermore, evidence from binding indicate that, when it comes to the relationship between possessors and various PPs, “rightwards is downwards”, i.e. certain PPs are further embedded in the structure than possessors.

These facts were then put together with the NP-structure indicated by the noun structure established in chapter 2. In order to maintain the structural relationship between the postnominal elements and avoid ad hoc movement operations, I proposed that fronting of the adjective, noun and pronominal possessor were the result of three independently motivated processes. The noun undergoes movement to D in order to value an unvalued feature R on D. Adjectives and undergo focus movement. Possessive pronouns undergo a process similar to pronominal object shift or negative shift. This derives the possible orders within the DP and preserves the structural configuration of the unfronted elements.

When D and  $\omega$ ’s feature configuration is consistent with Pattern II, I proposed that D undergoes feature-sensitive Lowering to  $\omega$ . Although Icelandic data was inconclusive between a structural account or a linear account (LD), evidence from

the other North Germanic languages point to a structural approach to the bound article. This allows for a unified account of Pattern II and definiteness marking across North Germanic.

Finally, in chapter 5, I discussed some preliminary explorations into domain sensitive phenomena, namely the clitic/affix status of the bound article, ellipsis and extraction. These phenomena appear to support the domains established in chapter 3. First, the bound article was argued to be a clitic, whose affix-like behaviour is due to it being a part of the extended projection of the root, hence contained within the morphophonological domain. Second, ellipsis appears to target either  $\sqrt{P}$  or  $\omega P$ , as is expected. Third, for extraction, (anti)locality constraints appear to account for movement possibilities of certain elements, however, in certain cases they do not. In case of non-participants, their immobility follows from their positions as adjuncts. With regards to definiteness effects and the inability to extract possessors and adjectives, point to additional factors coming into play, such as definiteness and specificity as well as properties of D.



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