Agreement in the nominal domain:  
A view from Icelandic*

Mark Norris  
February 28, 2011

1 Introduction

In many of the world’s languages, relationships between various words in a sentence are encoded by morphological marking termed agreement. This familiar phenomenon is exemplified in (1–3):

(1) L-es fille-s arriv-ent.  
the.PL girl-PL arrive-3PL  
‘The girls arrive/are arriving.’  
(French)

(2) Nei-d tüdruku-d saabu-si-d.  
these-NOM.PL girl-NOM.PL arrive-PST-3PL  
‘These girls arrived.’  
(Estonian)

(3) Stelp-ur-nar kom-u.  
girl-NOM.M.PL-the.NOM.M.PL arrive(PST)-3PL  
‘The girls arrived.’  
(Icelandic)

In the above examples, there are two relationships marked by agreement. First, there is agreement between a determiner/demonstrative and the noun it modifies (to speak informally). In (1), the noun filles ‘girls’ is plural and the determiner les ‘the’ is marked plural as well. I will refer to this agreement as concord. We also see agreement between the subject noun phrases and the verb. In (2), the subject neid tüdruku ‘these girls’ is third person and plural, and the verb saabusid ‘arrived’ is marked with a suffix indicating third person and plural. I will refer to this agreement as A-P agreement. These relationships are by no means the only kinds of agreement seen cross-linguistically, but they are certainly common.

These two agreement relationships are particularly interesting for theories of syntax that aim to draw direct parallels between the clausal and nominal domains, they seem to be two sides of the same coin. On the one hand, we have agreement in the nominal domain (concord), and on the other hand, we have agreement in the verbal domain (A-P agreement). While there is much work investigating and analyzing A-P agreement, there is very little focusing on concord, and the work that exists aims to analyze concord by using the same theoretical machinery used to analyze
A-P agreement (see, e.g., Mallen 1997, Carstens 2000, Koopman 2006, Kramer 2009). Such analyses effectively include a tacit assumption: namely, that concord is, in fact, A-P agreement in the nominal domain.

In this paper, I argue that such a view is mistaken. Although A-P agreement and concord are similar in that both are forms of agreement, there are several descriptive differences between the two that cast serious doubt on any attempt to equate them. Using data from concord in Icelandic, I further argue that recent approaches to agreement based on AGREE (Chomsky (2000, 2001), et seq.) cannot account for concord without seriously weakening some of the core assumptions of the theory. Specifically, I show that concord does not seem to require a c-command relationship between the agreeing head and the origin of the features expressed by agreement. Thus, I develop a novel analysis of concord building on research in the framework of Distributed Morphology (DM, Halle (1990); Halle and Marantz (1993)) that does not require c-command to hold between agreeing heads and the origin of the features.

If the arguments presented here are correct, then the implications of this view for a theory of agreement are straightforward. Since there is good reason to separate concord from A-P agreement, and thus, a theory of A-P agreement does not a priori need to be able to account for concord, and vice versa. Of course, a theory that accounts for both is very tantalizing, but such a theory is not intrinsically better than a theory that does not, especially if the theory itself is not particularly illuminating.

1.1 Outline

The outline of the paper is as follows. In section 2, I will lay out the Icelandic concord data and discuss some of the previous approaches to concord in the literature. In section 3, I will give some further background on morphological agreement, outlining the reasons to believe that concord and A-P agreement are different. I will also show that these reasons make concord difficult to handle with a theory of agreement based only on AGREE, and in section 4, I develop a novel analysis of concord, using both AGREE and the DM operation of Feature Copying. In section 5, I return to AGREE and consider some data that pose problems for the implementation of the AGREE relation in my account, and I also consider how the relation would need to be modified in order to be sufficient account for concord by itself. In section 6, I consider the implications of the data on the claim that DP is a phase in conjunction with claims about allomorphy recently advanced by Embick (2010), and I conclude in section 7.

2 Background: Concord in Icelandic

In Icelandic, nearly all of the elements in a DP must show concord, most commonly expressed by what I will refer to as concord markers (CM). Concord markers vary in morphophonological form according to the GNC features of a nominal phrase:

\[
\begin{array}{llll}
\text{fjór-ir} & \text{litl-ir} & \text{snigl-ar} \\
\text{four-CM}_1 & \text{little-CM}_1 & \text{snail-NOM,M,PL}_1 \\
\end{array}
\]

\(^1\)A note on notation: As a way to save space, I will gloss concord markers as CM except when it could lead to confusion. When necessary, I will indicate the features that the CM is marking by using subscripts, both on the CM and on the features the CM is marking. The features will always be written in full on the noun.
CMSs appear to be a kind of agreement morphology. This agreement, which I will refer to as concord, is obligatory. The suffixes cannot be dropped (5) and in the general case, they must all match in features (6).

(5) * fjór lítill snigl-ar
   four little snail-NOM.M.PL
   Concord markers are obligatory

(6) * fjór-ár lítill snigl-ar
   four-NOM.F.PL little-NOM.M.SG snail-NOM.M.PL
   Concord markers must match in features (including the noun)

Concord in Icelandic is very rich. As I have mentioned, nearly all elements must express the features of the nominal phrase. A more complicated version of the DP in (4) is given below:

(7) all-ir hin-ir litl-ú snigl-ar-nir mín-ir fjór-ir
   all-CM1 other-CM1 little-CM1 snail-NOM.M.PL1-the.CM1 my-CM1 four-CM1
   ‘all my other four little snails’

In example (7) above, there are seven different elements (including the noun) bearing CMSs:

a. Quantifier:       all-ir snigl-ar     ‘all snails’
b. Demonstrative:   hin-ir snigl-ar-nir ‘the other snails’
c. Adjective:        litl-ú snigl-ar-nir ‘the little snails’
d. Definite article: snigl-ar-nir        ‘the snails’
e. Possessive pronoun: snigl-ar-nir mín-ir ‘my snails’
f. Numeral:          fjór-ir snigl-ar     ‘four snails’

2.1 Exceptions to the rule

Agreeing (that is, showing concord) is certainly the general case in the language, but there are a few idiosyncrasies worth noting before we continue. First, it is only the numerals one through four that show concord. Numerals between five and nine as well as numbers indicating twenty, thirty, etc. show invariant forms. The numerals hundrað ‘hundred’, þúsund ‘thousand’, and so on, do not agree with the nouns they modify. Instead, they trigger their own agreement.

(9) a. þrír / sjö / tuttugu litl-ir snigl-ar
    three.CM / seven / twenty little-CM snail-NOM.M.PL
b. um þrjár / sjö / þrjáfu litl-ar borg-ir
    about three.CM / seven / thirty little-CM city-ACC.F.PL
c. frá þrem(ur) / sjö / fjórufir litl-um hús-um
    from three.CM / seven / forty little-CM house-DAT.N.PL
(10) a. (eitt) hundrað litl-ir snigl-ar
    one.CM1 hundred.NOM.N.SG1 little-CM1 snail-NOM.M.PL1
    ‘one hundred little snails’
b. þrjú hundruð litl-ir snigl-ar
   two.CM NOM.N.PL little-CM snail-NOM.M.PL
   ‘three hundred little snails’

In example (10b) above, þrjú ‘three’ agrees with hundruð ‘hundred’, which is neuter, and not with sniglær ‘snails’, which is masculine.

As with numerals, only a select set of possessors show concord: the possessive pronouns. “Possessive pronouns” is the name given to the words used for first-person singular (minn), second-person singular (þinn), and third-person reflexive possessors (sinn). Possessive pronouns change in morphophonological form based on GNC features, whereas other possessors invariantly appear in genitive case.

(11) a. snigil-l-inn min-n / hans
   horse-NOM.M.SG-the.CM my-CM / he.GEN
   ‘my snail / his snail’

   b. um borg-ð-ina mín-a / hennar
      about city-ACC.F.SG-the.CM my-CM / she.GEN
   c. frá hús-i-nu mín-u / okkar
      from horse-DAT.N.SG-the.CM my-CM / we.GEN

The final category of words with exceptions is adjectives. First, adjectives have two separate declensions, which have traditionally been called “strong” and “weak.” What seems to be the case is that weak forms appear in definite DPs whereas strong forms appear in indefinite DPs. The declension paradigms are given in Tables 1 and 2, and some examples are given in (12) and (13).²

<table>
<thead>
<tr>
<th></th>
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<th>FEM</th>
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<th>NEUT</th>
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<tr>
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<td>-ar</td>
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</tr>
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<td>-um</td>
<td>-ri</td>
<td>-um</td>
<td>-u</td>
</tr>
<tr>
<td>GEN</td>
<td>-s</td>
<td>-ra</td>
<td>-rar</td>
<td>-ra</td>
<td>-s</td>
</tr>
</tbody>
</table>

Table 1: Strong (indefinite) declension paradigm for adjectives in Icelandic

<table>
<thead>
<tr>
<th></th>
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<tr>
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<td>-a</td>
<td>-u</td>
<td>-a</td>
<td>-u</td>
<td>-a</td>
</tr>
</tbody>
</table>

Table 2: Weak (definite) declension paradigm for adjectives in Icelandic

²Although I have given the NOM.M.SG ending as -ur in Table 1, it can also appear as -l, -n, and -Ø. This fact will not affect our discussion here.
This relationship could perhaps be called definiteness concord, but it certainly seems different from the rest of concord in that it only shows up on adjectives. The goal of this paper is to understand why GNC features pattern together in concord, and since definiteness concord (if it even should be called concord) behaves differently, I will set it aside for the remainder of this paper.

There also exist some adjectives (and nouns) which have invariant forms regardless of GNC features. For example, the adjectives *einmana* ‘lonely’, *hissa* ‘surprised’, and *hegara* ‘slow’ all behave this way. Comparative adjectives are nearly indeclinable: Every form is -i except neuter singular forms, which take -a instead. Superlative adjectives have both strong and weak paradigms just like normal adjectives, although superlative adjectives are often used in situations the nominal is definite, and thus surface in weak form.3 Some examples are shown below:

### Indeclinable adjectives

(14)

<table>
<thead>
<tr>
<th>Adjective</th>
<th>Norwegian</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>fjóðir</td>
<td>four</td>
<td>four lonely snails</td>
</tr>
<tr>
<td>um fjóðir</td>
<td>about four</td>
<td>about four lonely girls</td>
</tr>
<tr>
<td>frá einmana</td>
<td>from lonely snail</td>
<td>from a lonely snail</td>
</tr>
</tbody>
</table>

### Comparative adjectives

(15)

<table>
<thead>
<tr>
<th>Adjective</th>
<th>Norwegian</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>staðr-i</td>
<td>bigger</td>
<td>(a) bigger snail / bigger snails</td>
</tr>
<tr>
<td>um staðr</td>
<td>about bigger</td>
<td>about bigger city / bigger cities</td>
</tr>
<tr>
<td>frá staðr</td>
<td>from bigger</td>
<td>from bigger house</td>
</tr>
</tbody>
</table>

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3This is likely an oversimplification, but it should be sufficient for our purposes.
(a) bigger house / bigger houses

2.1.1 Summary: Concord in Icelandic

In Icelandic, the generalization is that nearly every element in the DP must agree in GNC features. This agreement is most generally expressed in suffixes (concord markers). However, there are some exceptions to this generalization. Only the numerals ‘one’ through ‘four’ show agreement in GNC features, and adjectives have the extra property of agreeing (in a sense) in definiteness. Let us now turn to some previous approaches to concord to see how they might explain concord in Icelandic.

2.2 Previous Approaches

As mentioned in the introduction, most of the work on concord shares at least goal: to account for concord using (more or less) the same mechanism as A-P agreement. In Mallen 1997; Carstens 2000, this mechanism is movement and feature checking, and in Koopman 2006, this mechanism is spec(ifier)-head agreement. In this section, I will briefly discuss the accounts provided in those papers as well as the difficulties that concord in Icelandic poses for them.

2.2.1 Mallen 1997 and Carstens 2000: Feature checking

Mallen’s (1997) and Carstens’s (2000) analyses of concord are framed in Checking Theory (Chomsky, 1995). In this view, features can be either interpretable or uninterpretable. At the level of representation known as Logical Form (LF), only interpretable features are allowed (by hypothesis). Removing uninterpretable features before LF is handled by feature checking, when an uninterpretable feature is paired with a matching feature in an appropriate structural relation. In such a situation, the uninterpretable feature is checked, and it erases. Furthermore, this feature checking sometimes coincides with movement. For example, Chomsky (1995) argues that uninterpretable features of T drive verb movement and subject raising. Checking of uninterpretable features is mandatory, and if no overt movement is visible, then the feature checking is assumed to happen at LF.

A tacit assumption for both accounts is that whether features are checked in the syntax or at LF has no effect on the morphology. Thus, in a language like Italian, where, according to Carstens (2000), there is overt raising of N to Num, but not all the way to D. However, D still shows concord in gender and number. Thus, for Carstens, the features of \([\text{Num Num + N}]\) raise to D at LF.

(16) le mie case belle
    the-FEM.PL my-FEM.PL house-FEM.PL nice-FEM.PL
    ‘my nice houses’
The motivation for LF feature checking is very straightforward. If we accept the hypothesis that uninterpretable features exist, these features must be checked at some point in the derivation, and checking coincides with movement, the rest writes itself. When there is no movement, there is still movement, but it is simply not visible. If one accepts the assumptions for the theory, then the conclusion is a relatively short leap.

However, we could also interpret the appearance of feature checking without overt movement as evidence that some of the assumptions of the theory of feature checking are incorrect. Technically speaking, covert feature movement at LF is nothing more than a kind of operation. There are elements that we have reason to believe are related (e.g., D and N in (16)). However, the layout of the theory as it is does not allow them to be formally linked in a straightforward way. In checking theory, this is because, by hypothesis, checking is fed by overt movement, but there is clearly no overt movement of N to D. Thus, the relationship is cashed out via an operation: invisible feature movement at LF.

As for concord in case, Carstens (2000) is silent about the matter, but Mallen (1997) discusses the facts for German. Building on a structure for Icelandic DPs proposed by Sigurðsson (1993), Mallen (1997) proposes that case features are checked in a K(ase) Phrase, which is merged directly above NP:4

4Mallen (1997) also has AgrO/AgrS projections in his structures, but it will not affect the discussion to leave them out for simplicity.
Generating case features so low in the tree (in KP) seems counterintuitive, as case features depend on the entire nominal phrase’s syntactic position. However, doing so allows Mallen (1997) to make elements of the DP show concord in case in the exact same way that elements show concord in gender and number: via movement (either overt or covert). Thus, at LF, there is covert movement of K’s features to Num and to D. Since adjectives are generated lower than K, they pose a problem for case concord, as they are not in the proper position to enter a feature checking relationship. Mallen proposes that they move from an adjunct position to Spec,KP, where feature checking can occur via Spec-Head configuration. As far as I can tell, Mallen (1997) account of case concord could extend to Icelandic, but it would require some very costly assumptions: namely, that case features are generated very low in the tree, and that covert feature movement at LF is real.

2.2.2 Koopman 2006

Koopman’s (2006) discussion of concord in Maasai and English is embedded within a larger discussion arguing that agreement is best conceived of as a relationship between a specifier and a head (Spec-Head agreement). Koopman’s (2006) assumptions about phrase structure are quite different from what I assume here, so I will abstract away from them for this discussion.

In Maasai, elements to the right of the noun must agree in gender, number, and case, whereas elements to the left of the noun do not. Koopman does not provide any complex examples from Maasai to show this, but she does give the schematic in (19):

(19) \[
\begin{array}{c}
[\text{gender}] \text{Dem Adv} [\text{case} [\text{number} [\text{gender}-N]]] \\
\text{NumeralP} \\
\text{AP} \\
\text{GNC} \\
\text{GNC}
\end{array}
\]

(Koopman, 2006, (19a))

Koopman argues that the agreement trigger (the noun, which is caseP for her) raises through the specifiers of AP and NumeralP, which explains their full agreement. Since all of the features are more or less generated in the same place, we also have a clear reason for why the elements must agree in all three GNC features. The fact that the noun surfaces to the right of the Demonstrative and Adverb goes hand in hand with the fact that they show no agreement. If the noun does not raise past them (to a specifier position), then they cannot agree. Koopman argues that the elements to the far left, which do agree (but only partially), reach their surface position by way of movement. They agree partially because they are merged very early in the tree, before the case head (of caseP) or number head is merged.

Thus, just as for Mallen (1997) and Carstens (2000), agreement within DP is (at least, partially) tied to movement. When there is agreement without movement, Koopman (2006) suggests there is movement of a null element, which agrees with the relevant head and then raises high enough to trigger agreement with the higher element. This is the analysis she suggests for English, where demonstratives must agree in number with the head noun. This idea is represented below, for the English DP this big dog, where the dotted lines indicate agreement, and the solid lines indicate movement.\(^6\)

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\(^5\) The element on the left edge does agree, but only partially (i.e., not in all three features). Koopman (2006) argues this is because elements on the left edge represent extremely “early” DP internal agreement.

\(^6\) This example is taken directly from the paper, so it incorporates Koopman’s (2006) assumptions about phrase structure. For example, all DPs are D heads with CP complements. The idea that a null head could agree, move to a higher position, and then agree again is, of course, not contingent on the proposed phrase structure, and it is that idea that I am drawing attention to.
In (20), the external argument of the NP (x) agrees with the NP under merge, and then raises up to Spec,DP, where it agrees with D via Spec-Head agreement. Since the only evidence for this movement is the agreement relationship between the demonstrative and the head noun, this is also essentially an operation, just like feature checking at LF. Given the assumptions that (Koopman, 2006) makes, there is no other clear option. If we adopt the hypothesis that agreement only happens via Spec-Head agreement (and maybe merge, as in (20)), then the agreement in English must also be handled by Spec-Head agreement. Since the element bearing the features is obviously not in specifier position, then the only option is a null element.

2.3 Background: general discussion

In this section, I began by surveying the rich system of concord in Icelandic. We saw that nearly every element must show concord in GNC features, with a few exceptions. I then discussed some previous approaches to concord. All three analyses were rooted in the idea that agreement goes hand in hand with movement—that is, agreement requires movement. Thus, when there is an overt agreement relationship but apparently no movement, they argue that covert movement is at work instead. I suggested that these instances of covert movement were really just ways of conceptualizing a kind of operation.

An operation or process is clearly necessary, because the relationship between two agreeing elements must be represented formally somehow. As Mallen (1997), Carstens (2000), and Koopman (2006) were all extending theories of A-P agreement to account for concord (with the tacit assumption that concord and A-P agreement are closely linked), they were driven to conceptualize the agreement operation as movement, either overt or covert. In the next section, I turn to a comparison of concord and A-P agreement, and I argue that, while they are certainly related (i.e., they are both forms of agreement), there is good reason to treat them as two different phenomena.

3 Morphological Agreement

3.1 Concord and Argument-Predicate Agreement

In a broad sense, concord and A-P agreement are the same: both involve aspects (features) of some linguistic item being morphologically marked on another linguistic item. When they are discussed descriptively, the same word is often used to describe the process: e.g., adjectives must agree with the nouns they modify (concord) or verbs must agree with their subjects (A-P agreement). Of course, one very obvious difference between the two is that they happen in different domains: concord is (most commonly) a property of nominal phrases, and A-P agreement is a property of clauses. From a theoretical standpoint, much of the work on concord has presupposed that concord and A-P agreement are the same, or at least, that they should be explained with the same machinery as A-P agreement (see Kramer (2009) for a review of the literature). This need not be the case a priori, especially if we find reason to believe the two are in fact different. When we actually dig deeper into the notions, we find evidence that strongly suggests they are different.
First, let us consider which features “agree.” The features of a concord relationship can include gender, number, and morphological case (case). In A-P agreement, we commonly see person, gender, and number features. The lack of person features in concord makes sense, since it is only in pronouns that we can really see a distinction in person, and the extra elements in the nominal phrase where concord is visible (e.g., adjectives, determiners) cannot typically be used with pronouns. The lack of case features in A-P agreement also makes sense, as case is often assigned based on syntactic position within the clause, so, e.g., in subject-verb agreement, the case of the subject is generally invariant. In cases where the subject is in an irregular case, like for Icelandic quirky subjects, the agreement we see is generally default rather than a new set of markers due to the different case. With respect to features expressed, concord and A-P agreement are slightly different, but there might be a functional explanation.

Next, let us consider where the features appear. In concord, features can show up on heads (e.g., nouns, determiners), on specifiers (e.g., numerals), and on adjuncts (e.g., adjectives). In A-P agreement, features are expressed on heads (e.g., T/V, Aux, participles), and if we count the features as appearing on subject DPs, we could also say the features appear on specifiers. If there are cases of features appearing on adjuncts (i.e., adverbs), they are rare—certainly rarer than adjectives showing concord. In this case, we have a clear asymmetry: concord shows up on more elements in more syntactic positions than A-P agreement.

Finally, and most importantly, we must consider where the agreeing features originate. In A-P agreement, this is simple: all of the features come from the DP-arguments (e.g., subjects) that the verb can be said to agree with. For concord, the answer is less straightforward. In short, gender is most likely a property of the noun itself, and number is either a feature of a Num(ber) head, or it is also a feature on N as well. Case, on the other hand, cannot be straightforwardly attributed to N or Num—it is assigned based on the entire DP’s syntactic role or position, and has nothing to do with the identity of the N.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Origin</th>
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<tbody>
<tr>
<td>Gender</td>
<td>N</td>
<td>Gender</td>
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</tr>
<tr>
<td>Number</td>
<td>N/Num</td>
<td>Number</td>
<td>DP-argument</td>
</tr>
<tr>
<td>Case</td>
<td>DP-external</td>
<td>Person</td>
<td>DP-argument</td>
</tr>
</tbody>
</table>

Table 3: The origins of features in concord and A-P agreement

The difference here is striking. While the features of A-P agreement come from a consistent source, features participating in concord come from varying places. Furthermore, notice that there are no features of any verbal head in the clause (e.g., V, Asp, T) that play a role in A-P agreement—all of the features come from phrasal arguments of V’s extended projection (in the sense of Grimshaw (2005)). In concord, the features (mostly) come from heads, but they certainly

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7There are also examples of what is called “negative concord” and “definiteness concord” in the literature. I will not treat either of these in my discussion of concord, as they both seem different from the main focus (concord in gender, number, and case). In fact, some cases of what appear to be definiteness concord may not even be concord at all (see, e.g., LaCara (To Appear)).

8Of course, if one adopts a Cinque (1994)-style analysis for adjectives, then concord might not appear on adjuncts. I am not aware of any cases of concord marking on other possible adjuncts in the DP (e.g., PP adjuncts, relative clauses).
do not come from phrasal arguments, and most of the features come from the nominal projection itself—the features are born there, and they are expressed there.

In summary, categorizing concord as the analog of A-P agreement in the nominal domain is descriptively problematic for at least three reasons. First, the features participating in the agreement process are different. Second, the features are realized in more and different places. Finally, the features originate in different places. From a descriptive standpoint, the processes are clearly different. Whether or not they can or should be explained via the same theoretical machinery is a different question, and it crucially depends on what theory of agreement we adopt. If we adopt AGREE-based agreement from Minimalism, it is not clear how this could be carried out.

3.2 Agreement as AGREE

In Minimalism, A-P agreement is carried out via a mechanism that is aptly called AGREE. The motivation for the constraints surrounding the conceptualization for the AGREE relation all come from A-P agreement constructions. The strictest formulation of AGREE is given below (see Chomsky (2000, 2001)):

\[
(21) \text{AGREE: A head X (the probe) agrees with YP (the goal), YP a maximal projection, only if:}
\]

\[
\begin{align*}
&\text{a. X c-commands YP,} \\
&\text{b. There is no ZP such that X c-commands ZP, ZP c-commands YP, and ZP has } \varphi \text{-features (i.e., there are no “interveners.”)} \\
&\text{c. X and YP are contained in the same phases.} \\
&\text{d. Both the probe and the goal possess uninterpretable features (i.e., are “active”)}
\end{align*}
\]

The key piece of AGREE that is problematic for concord is the requirement of c-command (80a). Of course, the notion of (c-)command is at the core of syntactic theory, exhibiting its presence in a wide variety of syntactic relationships. To be clear, I will review the basics of command relationships before turning to discuss the relationship between concord and command (and by extension, AGREE). A more thorough and clear discussion of theories of command is given by Barker and Pullum (1990).

Consider the structure given below:

\[
(22) \hspace{1cm}
\begin{array}{c}
1P \\
\downarrow \\
1 \\
\downarrow \\
\text{SpecP} \\
\downarrow \\
\text{Spec...} \\
\downarrow \\
2 \\
\downarrow \\
2' \\
\downarrow \\
3P \\
\downarrow \\
3P \\
\downarrow \\
\text{AdjunctP} \\
\downarrow \\
\text{Adjunct...} \\
\downarrow \\
\text{...}
\end{array}
\]
In the above structure, there are some relationships of command that are uncontroversial. For example, 1 commands everything in 2P and 2 commands everything in 3P. There are also some relationships which may or may not be in a command relationship depending on the definition of command. For example, 2 commands SpecP if the relevant notion is m-command, but not if the relevant notion is c-command. Finally, there are relationships which uncontroversially do not involve a command relationship. For example, 3 does not command SpecP under any definition of command that I am aware of. Agree is generally taken to be sensitive to c-command, although some authors have argued for a view of Agree that makes reference to m-command (for example, Nuger (2010)).

Another type of command relation that does not hold is the one between a head inside SpecP or AdjunctP and anything outside of that phrase: Whereas SpecP commands everything in 2’, the actual head of SpecP does not command (either under c-command or m-command) anything in 2’. As the traditional definition of Agree requires the relationship to be between a higher head and a lower phrase, we are led to the following prediction: Agree relationships cannot be established between the head of a phrase in specifier position and some lower maximal projection, because the c-command requirement will not be met. The same is true for the head of a phrase in adjunct position. 9

This is clearly an issue for characterizing concord in terms of Agree. Setting aside the fact that concord involves case, let us assume for the moment that grammatical gender and number features are born on N. In Icelandic, quantifiers like allur ‘all’ must show concord in GNC features. These quantifiers are likely heads in the main spine (see e.g., Julien (2005); Sigurðsson (1993))— for the moment, let us say they are heads of Q(quantifier)Ps. If concord is Agree, then a Q like allur must enter the Agree relation with NP, as Agree is by hypothesis only established between heads and maximal projections in their c-command domain. Presumably, though, NP can inherit the relevant features from N. This is schematized in the tree below, where I use a dotted line to indicate an Agree relationship.

(23) QP
    Q[M,PL]...
    D NP[M,PL]
    N PP

Relationships between heads in the main spine and lower elements are straightforwardly explained by Agree (consider, e.g., T entering Agree with a DP in spec,vP). Indeed, that is the exact relationship that a verbal head like T has with the DP argument it agrees with.

As we have seen, elements in what can be argued to be specifier or adjunct positions also show concord in Icelandic just as heads in the main spine (like Q/D) do. Formally, there is no way for these heads to acquire the relevant features if Agree is defined as in (21), as there is no c-command

---

9The picture looks a bit different if one assumes features can percolate or are shared between minimal and maximal projections. In that case, perhaps the maximal projection of a specifier or adjunct could act as a probe and would be in a position to c-command N. These assumptions would put us very close to the world of Bare Phrase Structure (Chomsky, 1995), which I address in §5.2.1.
relation between the probe (adjunct or specifier) and the goal (N).\textsuperscript{10} Furthermore, adjuncts and specifiers showing concord is by no means a rare case: It is adjectives that most frequently show concord cross-linguistically (Corbett, 2006), and adjectives are most commonly analyzed as either adjuncts or specifiers. For a theory of concord rooted in AGREE, this fact is particularly mysterious. Why would an element flouting one of the core requirements for AGREE (c-command) be the element that most frequently participates in concord?\textsuperscript{11} The lack of an obvious answer to this question suggests that something is wrong about the assumptions that lead us to the question in the first place.

### 3.2.1 Kramer (2009): Concord as AGREE

In her dissertation, Kramer (2009) develops a morphosyntactic investigation of DPs in Amharic, including thorough investigations of the number and gender systems in the language and a “preliminary exploration” of some of the concord processes within the DP.\textsuperscript{12} Kramer’s analysis of concord is rooted in AGREE, and the motivation for this choice comes from the gender system in the language. Amharic has a masculine-feminine system with masculine as default, and it is largely based on natural gender. However, there are remnants of a grammatical gender system still present in the language. Some examples of nouns which are feminine by default are given below:

\begin{align*}
(24) \quad & \text{a. bákina-wa car-F.DEF ‘the car’} \\
& \text{b. ayt’-wa mouse-F.DEF ‘the mouse’}
\end{align*}

For the most part, natural gender and grammatical gender do not interact. Many of the words with grammatical gender are inanimate nouns and thus never have natural gender. However, when grammatical and natural gender are in conflict, it is natural gender that wins:

\begin{align*}
(25) \quad & \text{a. ayt’-wa mouse-F.DEF ‘the mouse whose gender is unspecified (or the female mouse)} \\
& \text{b. ayt’-u mouse-M.DEF ‘the male mouse’}
\end{align*}

To capture this, Kramer argues for an analysis where $n$ encodes natural gender and thus comes in three varieties:

\begin{align*}
(26) \quad & n [+FEM] \text{ female} \\
& n [-FEM] \text{ male} \\
& n \text{ unknown or no natural gender}
\end{align*}

As for grammatical gender (i.e., when the gender seems to be more of an idiosyncratic property that must be memorized), Kramer encodes this as a feature on Roots. AGREE is well-suited to this fact because of condition (b) on locality: the probe must enter the AGREE relation with the

\textsuperscript{10}Of course, assuming Bare Phrase Structure would allow specifiers and adjuncts to c-command Ns. I will return to this issue in §5.2.1.

\textsuperscript{11}For discussion of Baker’s (2008) recent approach to agreement, which involves a rethinking of the c-command requirement, see §5.2.2.

\textsuperscript{12}In addition to concord in gender and number, Amharic exhibits optional case concord, but she sets that process aside, focussing on the gender and number concord instead.
first available goal. Thus, assuming the structure below, when an element showing concord (say, D) probes into its c-command domain to find a value for gender and number, the first head with a gender feature that it finds would be n. It is only if n lacks a value for gender (i.e., there is no natural gender or it is unknown) that the probe will find the value on the Root.

(27)

\[
\begin{align*}
\text{DP} & \quad \Downarrow \\
D & \quad \Downarrow \\
\ldots & \quad \Downarrow \\
n & \quad \Downarrow \sqrt{P} \\
[-\text{FEM}] & \quad \Downarrow \sqrt{\text{AYT}} [+\text{FEM}] \\
\end{align*}
\]

Again, an account of gender and number concord couch in AGREE is straightforward when it comes to heads in the main spine, like D, because these heads unquestionably command the heads where those features are generated (N for gender and possibly Num for Number). As for phrases in specifier and adjunct position, demonstratives, quantifiers, the numeral ‘one’, and adjectives all have the potential to agree with the head noun. For Kramer, though, head nouns are in the (c-)command domain of these elements in specifier/adjunct position. Under a standard definition of command, this claim is not straightforward: while the phrase itself may c-command the noun, the head of such does not.

3.2.2 And what of case?

In addition to gender and number, elements of the DP in Icelandic must also agree in case. There are many varied theories of how case assignment is carried out, but one common assumption is that at least some case is assigned directly by a head to its complement. This is often called inherent case (see e.g., Woolford (2006)), and it is used to explain verbs and prepositions that require their complements to be in certain (irregular) cases. For example, the verb að hjálpa ‘to help’ always assigns DAT to its complement, and the preposition til ‘to’ always assigns GEN:

(28) Hildur hjálp-að-i stelp-u-nni.
H/NOM help-PST-3SG girl-DAT.SG-the.CM
‘Hildur helped the girl.’

(29) til borg-ar-innar
to city-GEN.F.SG-the.CM
‘to the city’

If this is the view of case that we adopt, then case concord would seem to require a “top-down” transmission of features. Descriptively, that is to say that the feature value would be assigned high and would need to make its way down the tree so that the other elements of the DP would receive the proper case value. This idea is schematized in the tree below:
The issue here is that AGREE is built for a bottom-up framework. In AGREE relationships, the probe (the head that needs feature values) commands the goal (the head or phrase that possess feature values). One possible solution to this problem is to suggest that case is actually a feature of nouns just like gender. Indeed, the fact that the features pattern together in concord relationships makes such an analysis very tempting. However, equating gender and case in this way would be a mistake, as their only similarity is their nominal nature.

### 3.2.3 Comparing Gender and Case

Although both gender and case are features of nominal phrases, they are intuitively very different. It is often taken for granted that gender is a property of nouns directly, and it is worth considering what empirical facts lead us to that notion. In this section, I will point out a few distributional facts which lead us to the intuition that gender is a property of nouns, and I will show that distributional facts for case do not lead us to the same conclusion. Some of the statements made in this section may seem quite obvious, but that is likely due to the intuition that gender and case are different. The goal of this section is to explore why we have the intuition that gender is a property of nouns, but case is not.

The gender system in Icelandic is a purely formal system of assignment. In every case that I am aware of, gender is an arbitrary property of the noun, independent of natural gender. Even in cases where the natural gender and grammatical gender conflict, it is the grammatical gender that wins (i.e., triggers agreement):\(^{13}\)

\begin{align*}
(31) & \quad \text{Hann er góð-∅ flugfrej-ja.} \\
& \quad \text{he is good-NOM.F.SG flight.attendant-NOM.F.SG} \\
& \quad \text{‘He is a good flight attendant.’}
\end{align*}

\begin{align*}
(32) & \quad \text{Kennar-i-nn m-inn er ólétt-ur.} \\
& \quad \text{teacher-NOM.M.SG-the.CM my-CM is pregnant-NOM.M.SG} \\
& \quad \text{‘My teacher is pregnant.’}
\end{align*}

\(^{13}\)I am in no way committed to the view that mismatches between grammatical gender and natural gender never lead to natural gender winning. However, the intuition I have from informants is that grammatical gender is the preferred winner.
In addition, as far as I know, there are no examples of what Kramer (2009) calls same-root nominals—nominals of differing gender that use the same root. Either one word with one gender is used for both male and female entities (as in the examples above), or different roots are used to refer to the different genders:

(33) a. strák-ur ‘boy’ vs. stelp-a ‘girl’
   b. mað-ur ‘man’ vs. kon-a ‘woman’

In other words, there appears to be no sense in which speakers could “choose” the gender of the noun: it is invariant. Unsurprisingly for a formal system of assignment, it seems the gender for every noun must be memorized. For the most part, concord markers for each gender are distinct from one another, so in practice, guessing is usually possible. In cases where a root takes an irregular set of markers, the presence of concord and concord markers can help disambiguate, as nominals rarely occur without some other word or affix that expresses the nominal’s gender as well— if the noun in a phrase is changed to a noun with a new gender, the concord markers of elements showing concord change as well:

(34) a. fjór-ir falleg-ir hest-ar
    four-CM(M) pretty-CM(M) horse-NOM.M.PL
   b. fjór-ar falleg-ar kis-ur
    four-CM(F) pretty-CM(F) cat-NOM.F.PL
   c. fjögur falleg-∅ hús-∅
    four-CM(N) pretty-CM(N) house-NOM.N.PL

Finally, the only way to “change the gender” of a nominal phrase is to change the noun itself. Changing the syntactic position of the nominal phrase or changing the modifiers inside the nominal phrase has no effect on the gender of the nominal phrase. If we take these distributional facts to be evidence that gender is best analyzed as a property of nouns, then it is clear that case simply cannot be.

Icelandic has four cases: NOM(INATIVE), ACC(USATIVE), DAT(IVE), and GEN(ITIVE). Unlike gender, there is no sense in which the “case of a noun” must be learned when the noun is learned, as every noun comes in every case. This can be seen in the paradigm for þröstur ‘thrush’ below:

<table>
<thead>
<tr>
<th>case</th>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOM</td>
<td>þröst-ur</td>
<td>þrest-ir</td>
</tr>
<tr>
<td>ACC</td>
<td>þröst-∅</td>
<td>þrest-∅</td>
</tr>
<tr>
<td>DAT</td>
<td>þrest-∅</td>
<td>þröst-um</td>
</tr>
<tr>
<td>GEN</td>
<td>þrast-ar</td>
<td>þrast-a</td>
</tr>
</tbody>
</table>

Table 4: The declension paradigm for þröstur ‘thrush’

Also unlike gender, changing the preposition or verb taking the nominal as an argument can have an effect on the case of that nominal. In fact, speakers often use prepositions to put the nominals in the correct contexts when trying to learn or recall a particular case form (e.g., when in school or when trying to help a learner of Icelandic). Some examples are given below:
As I have mentioned, verbs also vary in the case they assign to subjects and objects. For example, the verb að hjálpa ‘to help’ always assigns DAT to its object argument (as in (28)), and the verb að sakna ‘to miss’ always assigns GEN. I noted above that the only way to “change the gender” of a nominal phrase is to completely change the noun. Given the differences between gender and case noted so far, it comes as no surprise to find that changing the noun in a nominal phrase has no effect on the case of the nominal phrase:\(^\text{14}\)

4 Analysis: Feature Copying

Although case and gender/number values come from different sources, they still pattern together when it comes to concord. It is only in very special circumstances that the two are pulled apart in Icelandic. Ideally, then, an analysis of concord would capture that fact, as well as give a principled explanation to the cases when the concord is pulled apart. In this section, I will propose an analysis of concord in Icelandic that does exactly that, which I will informally call Feature Collection and Copying. Feature Collection is the descriptive term I give to the syntactic side, where all features are “collected” on a certain head (via AGREE), and Feature Copying is the PF-operation from DM.

\(^{14}\)Though I only give the grammatical examples below, it should be noted that any other case on the object DP would result in ungrammaticality.
4.1 Feature Copying analysis: basics

I propose that features are collected on the highest head in the nominal phrase, which I propose is K (for Kase, or morphological case). K always has unvalued features for gender and number, which means K is a probe. In order to get values for its gender and number features, K probes into its c-command domain until it finds a goal with values for the features. K receives a value for case through whatever mechanism is responsible, and thus will possess values for gender, number, and case. This is the part of concord I descriptively call feature collection. In the tree below, I use dotted lines to symbolize an Agree relation, whereas the solid line indicates assignment of case from the preposition, *af*.

The reason for having K be the locus of these features (instead of say, D) is consistency. In Icelandic, the position of demonstratives and quantifiers has been argued to be higher than D/Spec,DP (Julien (2005); Norris (To Appear)). Thus, if we wanted to have the features “collected” in the highest head, it would depend on what heads are present in the structure. I have claimed that this collection comes as a result of the head entering the derivation with unvalued features for gender and number, and subsequently probing to find the relevant values. If K is the highest head in the nominal projection, we only need one head with unvalued features, but if it is either Q, Dem, or D, we need three, and we need to prevent them from having unvalued features unless they are the highest head in the nominal projection. However, the head K is never spelled out itself, which is a drawback of an analysis assuming a K head. For concreteness, I continue the discussion under the analysis which makes use of the KP layer, but it is certainly workable without it. This paragraph is interesting and important, so it should be expanded.

4.1.1 PF: AGR node insertion and Feature Copying

Then, I assume a DM analysis of agreement, where agreement happens postsyntactically before Vocabulary Insertion and Linearization. The first operation is the insertion of an AGR node (a dissociated morpheme) adjoined to the target of agreement, and the second operation is Feature Copying of the relevant features and feature values onto the AGR node. In Icelandic, AGR nodes
are adjoined to all the heads which show concord. We could think of it as a sort of rule, schematized below.\footnote{Of course, if the rule given in (38) is interpreted literally, then we expect an AGR node to be adjoined to every single X at PF, which is not what we see. To avoid that, we would need a separate rule for each kind of head showing concord, with the rule in (38) as a template. I discuss AGR node insertion in more detail in §4.3.}

(38) **AGR Insertion**

\[ X \rightarrow [X \text{AGR}] \]

K c-commands everything else in the nominal phrase, and K possesses all of the relevant features for concord. Thus, if we copy the features of K onto every AGR node, we will have essentially ensured that all elements of the nominal phrase have the appropriate values for gender, number, and case. The rule of Feature Copying would look something like this:

(39) **Feature Copying**

The features of the closest c-commanding K to any particular AGR node are copied into it.

The idea behind this comes from Kramer (2009, 2010), who develops a similar analysis for optional definiteness concord in Amharic adjectives. As we saw in §3.2.1, Kramer (2009) argues that concord should be cashed out via AGREE. However, the optional definiteness “concord” runs into a problem, because the head that needs the features (A) does not c-command the head that possesses the features (D). An example of the optional definiteness concord is given below, followed by the relevant parts of the structure for Amharic (Kramer, 2009, 2010):

(40) \text{tillik’-u t’ik’ur(-u) bet}

\text{big-DEF black(-DEF) house}

‘the big black house’

(Kramer, 2010)

(41)

\[ \begin{array}{c}
\text{DP} \\
\text{D} \\
\text{-u} \\
\text{AP} \\
\text{NP} \\
\text{AP} \\
\text{NP} \\
\text{tillik’} \\
\text{t’ik’ur} \\
\text{bet} \\
\end{array} \]

Kramer (2009, 2010) establishes independently that D_{[\text{DEF}]} undergoes Local Dislocation with the element immediately to its right, which accounts for obligatory definiteness marking on \text{tillik’} ‘big’. The marking on \text{t’ik’ur} ‘black’ looks like agreement, but as I mentioned, it cannot be accomplished by AGREE because the head that needs the features does not c-command the head that has the features. By transferring features instead via Feature Copying, Kramer subverts the c-command requirement on AGREE. The added benefit for my analysis is that all of the features can be collected in one place before copying occurs.

By collecting all of the features in one place and then copying them throughout the domain, we have a good explanation for why gender, number, and case tend to stick together in concord: They are copied from the same source. In addition, it gives us a straightforward explanation of what leads to concord being pulled apart. I turn to one such case now.
4.2 When concord is pulled apart: Icelandic partitives

In Icelandic partitives, gender/number concord appears to reach farther than case concord. Some examples are given below:

(42) Sum-ar af þess-um stór-u bók-um eru græn-ar.

Some of these big books are green.

(43) Sum-ar þess-ara stór-u bók-a eru græn-ar.

Some of these big books are green.

The important fact to notice about the above examples is that all of the relevant elements have the same value for gender (FEM) and number, but the quantifier sumar ‘some’ has a different case from the rest of the nominal phrase. In this proposal, elements showing concord get their GNC features from K via Feature Copying at PF. Therefore, the mismatch in case (and the matching in gender) must be attributable to the features on K. Let us consider an abbreviated version of the KP in (42):  

Given that there are two case values in the structure, there must be two K heads under my analysis. K\(_1\) is the closest c-commanding K to sumar, and K\(_2\) is the closest c-commanding K to the elements in DemP. Thus, we expect features of K\(_1\) to be copied into the AGR node attached to sumar, and we expect the features of K\(_2\) to be copied into the AGR nodes attached to the elements in the complement of K\(_2\).

16The quantifier sumar, which means ‘some (as opposed to others)’ does not have the indefinite meaning of English some. That meaning would be translated with the word einhver ‘some(one)’. With count nouns, sumur is only compatible with the plural, as it requires creating two groups— ones that fall in the group, and ones that do not. However, it can bear singular agreement when modifying mass nouns e.g., fólk, the word for ‘people’ in Icelandic, which is singular: sumt fólk ‘some people’.

17To be clear, sumar does not actually ‘become’ sumar until after the AGR node is attached and gets features. Perhaps a more accurate characterization would be something like \(\sqrt{\text{SUM}}\) or the categorizing head combining with \(\sqrt{\text{SUM}}\) (maybe \(\sqrt{?}\)), but this abstraction does not impact the argument I am making.
As for the feature values of $K_1$ and $K_2$, the differing case features are clearly due to the locations of the two KPs. One is in subject position of a copular clause, and its value for case is thus NOM, while the other is the argument of the preposition *af* ‘of’, which always assigns DAT to its complements. As for gender and number, I have proposed that K receives values for those via AGREE: $K_2$ probes into its c-command domain and finds the gender feature on *bók* ‘book’ and the number feature on Num. As for $K_1$, notice that there are no elements with a differing gender or number value between $K_1$ and $K_2$. Thus, when $K_1$ probes, it finds the gender and number values on $K_2$, and thus receives the values FEM and PL.

However, there are cases where $K_1$ finds a value for number or both gender and number features before it reaches KP$_2$. We can see this in the examples below, where $K_1$ has a different value for number than $K_2$ (in (45)) and both gender and number (in (46)):

(45) Ein af þess-um stór-u bók-um er græn.
    one.NOM.F.SG of these.DAT.F.PL big-CM(DEF) book-DAT.F.PL is green.NOM.F.SG
    ‘One of these big books is green.’

    half-NOM.M.SG of these.DAT.F.PL big-CM(DEF) book-DAT.F.PL is green.NOM.M.SG
    ‘Half of these big books are green.’

The data above show that the gender and number of the quantifier-like element in KP$_1$ can be independent of the gender and number value of KP$_2$. This is not surprising given the wide range of words and phrases that can serve as quantifiers. The quantifier in (46), *helmingur*, is actually a noun itself, so it certainly has its own value for gender. It can apparently have its own value for number as well, as it is singular in (46) while KP$_2$ is plural. We clearly need to be able to give phrases acting as quantifiers inherent values for gender and number in some cases, and in those cases, $K_1$ will find a value for the relevant features before reaching $K_2$.

This makes a clear prediction that quantifiers can show independent concord, too, and this is borne out. In example (47) below, the quantifier is the phrase *tveir þriðjungar* ‘two thirds’, and the numeral *tveir* agrees with þriðjungar and not bókum. This is exactly what we predict: *tveir* is most closely c-commanded by $K_1$, whose number and gender features were valued by þriðjungar:

(47) Tveir þriðjung-ar af þess-um stór-u bók-um eru grænir.
    two.NOM.M third-NOM.M.PL of these big books are green.
    ‘Two thirds of these big books are green.’

To sum up, I argued for a two-step analysis of Icelandic concord, where gender, number, and case are “collected” in the highest head in the syntax and then copied onto AGR nodes inserted postsyntactically. This analysis gives a straightforward reason to why the features pattern together in GNC concord: they are copied from the same source. In addition, the analysis gives us a way to explain why the features pull apart in the cases they do. Since gender and number are accessed via AGREE, but case is not, we predict they will pull apart in cases where there is more than one case assigner but only one value for gender and number. Having motivated the basics of the analysis, I will now turn to a discussion of some finer-grained details of the analysis.
4.3 AGR node Insertion

As I described AGR node insertion above, it looks like a rule that adjoins an AGR node to all heads showing concord. However, it is not exactly clear what happens when a complex head is created in the narrow syntax. An example of this in Icelandic is the rolled-up noun and suffixed article head, as argued by Julien (2005) and Norris (To Appear). This structure is given below:\(^{19}\)

\begin{equation}
\text{hest-ar-nir} \quad \text{‘horses-NOM.MASC.PL-the.CM’}
\end{equation}

In the above structure, every node in the tree is technically a head. There are two obvious alternatives for where to adjoin AGR nodes in the above tree. Either we adjoin an AGR node to the morphological word, as in (49), or we adjoin subwords, as in (50):

\begin{itemize}
  \item[(49)] Adjunction to the morphological word
  \begin{equation}
  \begin{array}{c}
  \text{d} \\
  \text{Num} & \text{d} \\
  \text{n} & \text{Num} \\
  \sqrt{\text{HEST}} & \text{n}
  \end{array}
  \end{equation}

  \begin{equation}
  \begin{array}{c}
  \text{AGR} \\
  \text{Num} \\
  \text{n}
  \end{array}
  \end{equation}

  \begin{equation}
  \begin{array}{c}
  \text{d} \\
  \text{Num} \\
  \text{n}
  \end{array}
  \end{equation}

  \begin{equation}
  \begin{array}{c}
  \sqrt{\text{HEST}} \\
  \text{n}
  \end{array}
  \end{equation}

  \begin{equation}
  \begin{array}{c}
  \text{d} \\
  \text{Num} \\
  \text{n}
  \end{array}
  \end{equation}

  \begin{equation}
  \begin{array}{c}
  \sqrt{\text{HEST}} \\
  \text{AGR} \\
  \text{n}
  \end{array}
  \end{equation}

  \begin{equation}
  \begin{array}{c}
  \text{AGR} \\
  \text{n}
  \end{array}
  \end{equation}

\end{itemize}

In Icelandic, both Num and d (the suffixed article) vary in form based on case, gender, and number. There are also ablaut alternations in n and Roots, but those may best be captured by Readjustment Rule (see §6). Given this, adjoining AGR nodes to only morphological words would force

\(^{19}\)In both Julien (2005) and Norris (To Appear), the head where the suffixed article is housed is called n, but this is not intended to be the same head as the nominalizing n. In order to avoid this confusion, I will refer to the suffixed article head as d.
us to posit some non-local allomorphy, where the AGR node adjoined to the entire morphological word determines the allomorphy selection of lower subwords. This is schematized below:

(51) Adjunction to MWd forces non-local allomorphy:

Having the AGR node affect the form of $d$ is not controversial, but having it affect the form of Num is more so. In fact, recent work on allomorphy by Embick (2010) explicitly forbids such interactions from occurring (at least, as contextual allomorphy). Thus, it appears we have reason to want to allow AGR node insertion to subwords. This makes sense if we think of AGR node insertion as being head-driven. That is to say, it is particular heads that trigger insertion of an AGR node postsyntactically rather than an abstract rule that adjoins a node to each relevant head. When heads become part of a complex head by head movement, it does not seem problematic to suggest that they could still trigger AGR node insertion.\footnote{I am grateful to conversations with Ruth Kramer (p.c.) and Matthew Tucker (p.c.) for helpful discussion about this idea.}

4.4 Where is $n$?

In DM, Vocabulary Items are inserted at every terminal node. Thus, for the complex head in (48), we expect a separate morpheme for each terminal node. This structure is repeated below:

(48)

Given this structure, we expect a Vocabulary Item to be inserted for $\sqrt{\text{ROOT}}$, $n$, Num, and $d$, and sometimes, that is indeed the case. Some examples are given in (52):

(52) Morpheme order: $\sqrt{\text{ROOT}}$-$n$-Num-$d$

a. $\sqrt{\text{GREIN}}$-ing-ar-nar = greiningarnar ‘the articles’ (NOM.FEM.PL)

b. $\sqrt{\text{NEM}}$-end-ur-nir = nemendurnir ‘the students’ (NOM.MASC.PL)

However, there are plenty of situations where this is not the case. The examples in (52) involve the nominalizing suffixes -ing and -and, which surfaces as -end when plural, but most nouns apparently have no overt exponent for $n$. Some examples are given in (53):
On its own, this is not a problem, as we could just say that \( n \) spells out as null in these cases. Unfortunately, there is one further complication. Some roots have irregular plural morphology, as in the examples below:

\[
\text{(54) Morpheme order: } \sqrt{\text{ROOT}} - n - \text{Num} - d
\]

\[
a. \sqrt{\text{SNIGIL}} - \emptyset - \text{ar-nir} = \text{sniglarnir} \text{ ‘the snails’ (NOM.MASC.PL)} \\
b. \sqrt{\text{BORG}} - \emptyset - \text{ir-nar} = \text{borgirnar} \text{ ‘the cities’ (NOM.FEM.PL)}
\]

The roots \( \sqrt{\text{VIN}} \) and \( \sqrt{\text{SKÓFL}} \) are simply examples of nouns that fall into special declension classes in Icelandic. Icelandic nouns are traditionally divided into so-called ‘strong’ and ‘weak’ declension paradigms, with subgroups in each class, which correlate with the endings the noun takes. The point is that the exponent of Num (fused with AGR) is dependent on the identity of the root. Considering the structure in (55), this looks like another case of an apparent non-local interaction.\(^{21}\)

\[
\text{(55) }
\begin{tikzpicture}
  \node (n) {\( n \)};
  \node (num) [right of=n] {\( d \)};
  \node (vin) [above of=n] {\( \sqrt{\text{VIN}} \)};
  \node (sk) [right of=vin] {\( \sqrt{\text{SKÓFL}} \)};
  \path (vin) -- (n) [-stealth] node [midway, above] {\( \text{-ir} \)};
  \path (sk) -- (n) [-stealth] node [midway, below] {\( \text{-nir} \)};
  \path (n) -- (num) [dashed] node [midway, above] {\( d \)};
\end{tikzpicture}
\]

There are several options that we can take. First, perhaps Num can still see the identity of the root although \( n \) is present. This amounts to saying that such non-local dependencies do exist. Given that there are other possibilities, we should not be too quick to allow that assumption. Another bold option would be to say that this is an argument against acategorical roots. Given that this is a core assumption of DM, it seems prudent to wait until more substantial evidence turns up (if it does) before making such a strong claim.

In his book, Embick (2010) proposes an operation of Pruning that removes material with null exponents for the purposes of concatenation statements, which are statements about the linear ordering of terminal nodes in the structure. By hypothesis, contextual allomorphy is only possible under linear adjacency. Thus, a rule of Pruning could be called upon in the case of Icelandic nominals. This operation is schematized below, where concatenation is marked with \( \sim \):

\[
\text{(56) Pruning Schema: } \sqrt{\text{ROOT}} \sim [n, \emptyset], [n, \emptyset] \sim \text{Num} \rightarrow \sqrt{\text{ROOT}} \sim \text{Num}
\]

In this case, Pruning of \( n \) would occur before Num undergoes VI, and thus vocabulary items for fused AGR+Num could be sensitive to the identity of the Root. Some example vocabulary items are given below:

\[
\text{(57) Sample Vocabulary Items for the Pruning account:}
\]

\[
a. \text{Num}[\text{NOM}, F, PL] \leftrightarrow -\text{ur} / \text{LIST1} \ (\sqrt{\text{SKÓFL}}, \sqrt{\text{KIS}}, \ldots) \sim
\]

\(^{21}\)For the structure below, and for the following discussion, I am ignoring the location of AGR nodes– for example, Num is actually the fusion of AGR and Num.
However, Pruning rules are not obligatory cross-linguistically, and to the best of my knowledge, no attempt has been made to characterize when null elements matter (i.e., when they are preserved) and when they do not (i.e., when they are Pruned). Thus, a Pruning explanation is not really an explanation but a stipulation.

We might also consider encoding declension classes as a feature on \( n \) heads. Thus, there would be many flavors of \( n \), and those \( n \)'s would select for the particular roots that fall into the declension class that the \( n \) encodes. While this analysis has the benefit of not needing the Pruning operation, it also requires postulating many different \( n \) heads with null exponents for the various declension classes. However, there is evidence that it is a good idea to mark declension classes on \( n \). When \( n \) is overt, it is \( n \) that determines the exponent of Num. For example, the nominalizers -\textit{ing} and -\textit{and} both fall in non-standard declension classes, and thus Num has an irregular form in the context of those nominalizers.

This analysis has intuitive appeal as well. In Icelandic, just as every noun must have gender, every noun must belong to a particular declension class. Encoding those declension classes as different versions of \( n \) (or as features on \( n \)) cashes this out in a formal way. When a Root “becomes a noun” by way of merging \( n \), it also becomes a member of a particular declension class. Some example Vocabulary Items for Num under this analysis are given below, where the subscripts on \( n \) are hypothetical noun classes:

(58) Sample Vocabulary Items for the declension class account:

\[ \begin{align*}
\text{a. } \text{Num}[^\text{NOM,F,PL}] & \leftrightarrow -\text{ur} / n \_{[\text{III}]} \\
\text{b. } \text{Num}[^\text{NOM,F,PL}] & \leftrightarrow -\text{ir} \\
\text{c. } \text{Num}[^\text{NOM,M,PL}] & \leftrightarrow -\text{ir} / n \_{[\text{II}]} \\
\text{d. } \text{Num}[^\text{NOM,M,PL}] & \leftrightarrow -\text{ar}
\end{align*} \]

For concreteness, I adopt this last analysis. Nothing crucial hinges on choosing this analysis over the Pruning option, but it does have at least a couple of advantages. As mentioned, in cases where \( n \) is overt, it is \( n \) that determines the exponent of Num. Recall the examples from (52):

(52) Morpheme order: $\sqrt{\text{ROOT}}-n$-$\text{Num}$-$d$

\[ \begin{align*}
\text{a. } \sqrt{\text{GREIN}}\text{-ing-ar-nar} & = \text{greiningarnar} \text{ ‘the articles’ (NOM.FEM.PL)} \\
\text{b. } \sqrt{\text{NEM}}\text{-end-ur-nir} & = \text{nemendurnir} \text{ ‘the students’ (NOM.MASC.PL)}
\end{align*} \]

The Num exponents triggered by the above nominalizers are both irregular. According to traditional grammars, the regular Num suffix is -\textit{ir} for \([\text{NOM.F.PL}]\) and -\textit{ar} for \([\text{NOM.M.PL}]\). Since having \( n \) trigger irregular endings is warranted in at least some cases, an argument from parsimony would say that \( n \) should trigger irregular endings in all cases. The declension class account also allows us to avoid using a rule of Pruning, and given the stipulative nature and the power of Pruning rules, this seems like a desirable outcome. Furthermore, under the Pruning account, particular Roots would need to be specified with declension class features in addition to various flavors of \( n \). Specifying Roots with features that are specifically nominal in nature seems like an argument against acategorical Roots, which is usually taken for granted in DM. For these reasons, I believe
the inflection class analysis to be superior. To be clear, though, nothing crucial hinges on this decision.

4.5 Syncretism in AGR paradigms

As I just discussed, there are cases where the Vocabulary Items for Num show what appears to be Root-sensitive allomorphy. Of course, in order to have “irregular” exponents, there must be a sense of what the “regular” exponents are. For Icelandic, the clearest case of a regular paradigm for AGR is the strong adjectival paradigm, which is repeated in Table 5.

<table>
<thead>
<tr>
<th></th>
<th>MASC</th>
<th>FEM</th>
<th>NEUT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SG</td>
<td>PL</td>
<td>SG</td>
</tr>
<tr>
<td>NOM</td>
<td>-ur</td>
<td>-ir</td>
<td>-∅</td>
</tr>
<tr>
<td>ACC</td>
<td>-an</td>
<td>-a</td>
<td>-a</td>
</tr>
<tr>
<td>DAT</td>
<td>-um</td>
<td>-um</td>
<td>-ri</td>
</tr>
<tr>
<td>GEN</td>
<td>-s</td>
<td>-ra</td>
<td>-rar</td>
</tr>
</tbody>
</table>

Table 5: Strong declension paradigm for adjectives in Icelandic

This paradigm, or most of it, is seen on adjectives, some demonstratives, quantifiers, the definite articles (both suffixed and free-standing) and possessive pronouns, to name a few. I say most of the paradigm, because there are cases where nearly the entire paradigm is visible, but there are a few exceptions. One of those instances is in the paradigm for the demonstrative hinn ‘the other’, which surfaces as hinn in NOM/ACC.M.SG and hitt in NOM/ACC.N.SG. While these exceptions are possibly regular across paradigms, I will not investigate the exceptions in depth in this paper. I will focus instead on the regular paradigm. There are several syncretisms in the regular paradigm worth noting:

1. [DAT, PL] is always -um
2. [GEN, PL] is always -ra
3. [GEN, SG] is -s for both [NEUT] and [MASC]
4. For [FEM, PL] and [NEUT], [ACC] = [NOM]

There are two different general patterns at play. In dative and genitive, there are syncretisms across genders within one case, and in nominative and accusative, there are syncretisms across cases within one gender.

In DM, syncretisms are generally captured by underspecification of Vocabulary Items. By leaving particular Vocabulary Items unspecified for a particular feature, they could be inserted at a terminal node regardless of the the value of that feature. Thus, if we leave the syncretic dative and genitive forms unspecified for gender, we can capture the syncretism across genders (see (59) and (60)). Similarly, leaving the accusative and nominative forms unspecified for case will allow the same Vocabulary Item to be inserted for each case (see (61)). A first attempt at Vocabulary Items for the regular AGR paradigm is given below:
When VI occurs, Vocabulary Items “compete” for insertion, as regulated by the Subset Principle (Halle, 1997):

**Subset Principle:**

a. The phonological exponent of a Vocabulary Item is inserted into a position if the item matches all or a subset of the features specified in that position.

b. Insertion does not take place if the Vocabulary Item contains features not present in the morpheme.

c. Where several Vocabulary Items meet the condition for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen.

Thus, when a morpheme contains the features [DAT, M, PL], the only Vocabulary Item that can be inserted is -um, because all other Vocabulary Items contain features that are not present in the morpheme and thus cannot be inserted, per (63b). However, if a morpheme had the features [DAT, F, SG], there would be two Vocabulary Items matching all or a subset of those features: -um ([DAT]) and -ri ([DAT, F, SG]). By (63c), the winner must be -ri, as it matches more features than -um. Similar examples can be examined with the [NOM/ACC] Vocabulary Items.

However, we run into a problem when the features of the [DAT] or [GEN] Vocabulary Items and the [NOM/ACC] Vocabulary Items overlap but do not conflict. For example, consider what happens when a morpheme contains [DAT, F, PL] or [GEN, N, PL]:

```
(64) AGR [DAT, F, PL]            (65) AGR [GEN, N, PL]
```

Adding [PL] to the specifications for -um and -ra will not work straightforwardly, as there would be a tie. Ties are not regulated by the Subset Principle as stated.\(^{22}\)

\(^{22}\)Hankamer and Mikkelsen (2005) propose a modification to the Subset Principle which resolves ties in features, but only if one or more of the Vocabulary Items is subject to additional contextual specifications. In that case, the Vocabulary Item with the more restricted contextual specification is chosen. In the tie being investigated here, there are no contextual restrictions, and thus such we are still left with a tie.
A possible solution would be to adopt a featural decomposition of case following Bierwisch (1967) or McFadden (2004). This could allow us to use a feature that unifies NOM and ACC, but excludes DAT and GEN. For both McFadden and Bierwisch, this feature is \([\text{OBL(IQUE)})\]: NOM and ACC are both \([-\text{OBL}]\), while DAT and GEN are \([+\text{OBL}]\). Abstracting away from the exact identity of the feature that distinguishes DAT from GEN, the relevant new VIs are given below:

(66) \([\text{NOM/ACC}]\) Vocabulary Items:
\[ \begin{align*}
\text{a. } & [-\text{OBL}, F, \text{PL}] \leftrightarrow -\text{ar} \\
\text{b. } & [-\text{OBL}, N, \text{SG}] \leftrightarrow -\text{t} \\
\text{c. } & [-\text{OBL}, N, \text{PL}] \leftrightarrow -\emptyset
\end{align*} \]

(67) \([\text{DAT}/[\text{GEN}]\) Vocabulary Items:
\[ \begin{align*}
\text{a. } & [+\text{OBL}, -\text{GEN}] \leftrightarrow -\text{um} \\
\text{b. } & [+\text{OBL}, +\text{GEN}] \leftrightarrow -\text{ra}
\end{align*} \]

With these new feature specifications, the \([\text{NOM/ACC}]\) Vocabulary Items in (67) will not even compete for insertion with the Vocabulary Items in (67), because their feature specifications are incompatible. The \([\text{NOM/ACC}]\) forms cannot be inserted for a morpheme specified as \([+\text{OBL}]\), as they are specified as \([-\text{OBL}]\).

This result can be interpreted in at least two ways. One possibility is that they can be interpreted as further support for a featural decomposition of morphological case. Indeed, the fact that there is syncretism across NOM and ACC does seem to suggest there is something linking the two, which a privative system with four distinct features simply cannot capture. Yet, even if we did not try to capture that distinction, we must do something, because VI cannot predict the proper forms. The advantage VI has over simply listing each of the endings is that it can collapse paradigms and analyze syncretisms in an intuitive and elegant way. However, in this case, we were forced to make a stipulation in order to maintain VI as is. Thus, a second way of interpreting these results is that something about VI does not work the way it is supposed to. Future work must investigate which of these two interpretations is the “right” one.

5 Back to AGREE

The main thesis of this work is that the AGREE mechanism is not implicated in concord. Of course, I just proposed an analysis of concord that makes use of AGREE. However, the AGREE relation was not between heads showing concord and heads where GNC features originate. It was between the highest head in the nominal phrase and N/Num so that the relevant features could get to a position where they c-commanded the entire nominal phrase. There are presumably other ways to “transmit” gender and number features from the bottom of the tree to the top of the tree. One possibility is that features of heads in the main spine percolate all the way up the nominal’s extended projection. This kind of feature percolation is what Grimshaw (2005) proposes. Thus, gender and number features would be present on K automatically, and we would not need to use AGREE to get them there. While there may be an intuitive problem with the fact that AGREE plays a role, it may still be necessary.

AGREE was useful the account of Icelandic partitives. Since there were two distinct cases being assigned, I argued that this implied the existence of two KPs. However, the gender feature seemed to make it out of the lower KP into the higher KP. Recall examples (42) and (43), repeated below:

(42) Sum-ar af þess-um stór-u bók-um eru græn-ar.
some.NOM.F.PL of these.DAT.F.PL big-CM(DEF) book-DAT.F.PL are green-NOM.F.PL
‘Some of these big books are green.’

(43) Sum-ar þess-ara stór-u bók-a eru græn-ar.

some.NOM.F.PL these.GEN.F.PL big-CM(DEF) book-GEN.F.PL are green-NOM.F.PL

‘Some of these big books are green.’

The gender of sumar comes from inside a PP (or PP-like) complement in (42) and from inside a possessor (or possessor-like phrase) in (43). It is not immediately clear whether features can percolate out of the extended projection as they would need to in order for this account to work. However, AGREE is well-suited to this task, as transferring features from one domain to a higher domain is exactly what it was built to do.

5.1 Problems for AGREE

5.1.1 Problems for AGREE: Numerals

However, there are also instances that are problematic for the AGREE-based approach presented here. One of those cases comes from numerals. Recall that the numeral hundrað ‘hundred’ appears to have its own gender and control its own concord. We can see this when numerals such as ‘two hundred’ are considered, as tvö ‘two’ appears to agree with hundrað ‘hundred’ and not the head noun.

(68) a. tvö hundruð snigl-ar
   two.CM₁ hundred.NOM.N.PL₁ snail-NOM.M.PL
   ‘two hundred snails’
   b. tvö hundruð borg-ir
   two.CM₁ hundred.NOM.N.PL₁ city-NOM.F.PL
   ‘two hundred cities’

Matters are even more complicated when we consider numerals like tvö hundruð og fjórir ‘two hundred and four’. While tvö hundruð ‘two hundred’ remains independent of the head noun, fjórir ‘four’ behaves just as it would if it were by itself: It must agree with the head noun. This is even true for case— numerals like tvö hundruð are completely independent of the GNC features of the entire noun phrase:

(69) a. tvö hundruð og fjór-ar snigl-ar
   two.CM₁ hundred.NOM.N.PL₁ and four-CM₁ snail-NOM.M.PL
   ‘two hundred and four snails’
   b. tvö hundruð og fjór-um borg-ir
   two.CM₁ hundred.NOM.N.PL₁ and four-CM₁ city-NOM.F.PL
   ‘two hundred cities’

(70) a. frá tvö hundruð og fjór-um snigl-um
    from two.CM₁ hundred.NOM.N.PL₁ and four-CM₁ snail-DAT.M.PL₁
    ‘from two hundred and four snails’
    b. *frá tveimur hundruð-um og fjór-um snigl-um
    from two.CM₁ hundred.DAT.N.PL₁ and four-CM₁ snail-DAT.M.PL₁

29
c. til tvö hundruð og fjögur-ra snigl-a
   to two.NOM.M.PL and four-GEN.M.PL
   ‘to two hundred and four snails’

d. * til tveggja hundrað-a og fjögur-ra snigl-a
   to two.NOM.M.PL and four-GEN.M.PL

The most straightforward way to account for the behavior of numerals like hundruð is to assume that they have inherent specifications GNC features, as they are invariant. An explanation for how numerals like tvö seem to acquire those features would require an in-depth exploration into the syntax of these complex numerals, which must be left to future work. The crucial issue for us is how this affects the AGREE-based approach that I argued for in §4.

If hundruð enters the derivation with values for GNC features, then we expect it to be a possible goal for K when it probes for gender and number values. This is only problematic if hundruð is closer to the probe than the noun. The structure I am assuming for nominals in Icelandic is the one advanced in Julien (2005); Norris (To Appear), with the relevant parts shown below:23

\[ (71) \]
\[
\text{KP} \\
\text{K} \ldots \\
\text{D} \quad \text{FP} \\
\text{Numeral} \quad \text{F} \quad \text{dP} \\
\quad \text{d} \quad \text{NumberP} \\
\text{Num} \quad \text{N/nP} \\
\quad \text{n} \quad \text{SNIGIL} 
\]

In the above structure, there is no question that the numeral is closer than the features on N and Num. Even if we assumed that features of N and Num find their way to dP as a result of the head movement to d, it still looks like the numeral would be closer.

---

23In the previous work, d was labeled n, instead, although Julien (2005) and Norris (To Appear) were clear that this n is not the nominalizing n. Since I make use of the nominalizing n in the structure below, I have labeled it d, as it is the location where the suffixed definite article is generated. This should be interpreted merely as a label, and not as a claim about the existence of light versions of functional heads.
One possible line of reasoning for the fact that numerals are ignored when K probes is that numerals are somehow opaque. Indeed, as we have seen, the fact that they are unaffected by case features of the entire nominal phrase does suggest independence in some form. However, while numerals like *hundrað* and *þúsund* are independent, the numerals ‘one’ through ‘four’ are entirely dependent. Whatever explanation we give to the fact that numerals are not eligible goals for K must also allow for Feature Copying into the numerals ‘one’ through ‘four’. Numerals must be opaque as far as the syntax is concerned to prevent K from accessing feature values of *hundrað*, but they must be transparent for the morphology to allow ‘one’ through ‘four’ to receive their feature values.

5.1.2 Possessors

Another area which could pose problems for the account developed here is possessors. In many analyses of possessors, they are structurally higher than N within DP. For example, Abney (1987) analyzes possessors as specifiers of DP. Unsurprisingly, possessors are in genitive case in Icelandic, and possessors show concord independent of the possesum DP.\(^{24}\)

(73) *þung-u* 
*bæk-ur* 
*gaml-a* 
*kennar-a-ns*

heavy-CM\(_i\) book-NOM.F.PL\(_i\) old-CM\(_j\) teacher-GEN.M.SG\(_j\) -the.CM\(_j\)

‘the old teacher’s heavy books’

\(^{24}\)There are three possessors, which I call *possessive pronouns* that behave differently. Instead of appearing invariantly in genitive case, possessors that are first-person singular, second-person singular, or third-person reflexive are expressed using possessive pronouns, which show concord with the possesum DP in GNC features. I will not develop an analysis of possessive pronouns here, but a possibility that is compatible with my account is that possessive pronouns are not full KPs, but simply D(P)s.
The fact that the possessors show independent concord is not surprising under my account. Possessors are nominal phrases just like the possessum, and thus they contain N and Num heads which supply values for gender and number. Once genitive case is assigned, the K head in the possessor KP would have all the relevant feature values, and Feature Copying would distribute them as before. The problem possessors pose is the following: What prevents the K in the possessum KP from finding the feature values of the possessor KP instead of the features of N?

In my analysis of partitives, I argued that quantifiers show concord in gender (and number) because the higher K establishes AGREE with the lower K, as shown below:

\[(74)\]

\[
\begin{array}{c}
\text{KP}_1 \\
K_1 \\
\left[\begin{array}{c}
\text{NOM} \\
\text{PL} \\
\text{FEM}
\end{array}\right] \\
\text{QP} \\
\left[\begin{array}{c}
\text{Q} \\
\text{sumar}
\end{array}\right] \\
\text{PP} \\
\left[\begin{array}{c}
P \\
\text{af}
\end{array}\right]
\end{array}
\]

\[
\begin{array}{c}
\left[\begin{array}{c}
\text{K}_2 \\
\text{DAT} \\
\text{PL} \\
\text{FEM}
\end{array}\right] \\
\text{KP}_2 \\
\text{DemP} \\
\text{þessum stóru bókum}
\end{array}
\]

This AGREE relationship is established because there are no suitable goals intervening between K₁ and K₂. Returning to possessors, if KP\text{poss(essor)} is closer to K\text{(possess)um} than N, my analysis predicts that K\text{um} will retrieve the values from KP\text{poss}, and not N. This is clearly the empirically wrong result, as we saw in (73). The concord relationships of the KP\text{poss} and KP\text{um} are completely independent of each other.

In Icelandic, it does not appear to be case that KP\text{poss} is closer to K\text{um} than N. Previous analyses of possessive DPs in Icelandic (see Sigurðsson (1993, 2006); Julien (2005); Norris (To Appear)) all share two common ingredients. First, possessors are low (i.e., Spec,NP instead of Spec,DP), and second, there is head movement of N to a position that is higher than Spec,NP. The head movement accounts for the fact that the typical order of possessors and nouns in Icelandic is N-Poss. I adopt this analysis here, which results in the following structure:

\[(75)\]  
\text{bækur gamla kennarans} ‘the [old teacher]’s books’
If we assume that features of subwords within a complex head become features of the morphological word, it is easy to see that the gender and number features of KP \(_{\text{poss}}\) will be farther than those of N/Num. Although K\(_{\text{um}}\) could possibly enter into AGREE with KP \(_{\text{poss}}\), locality restrictions prevent it from doing so, as there is a possible goal that is closer.

In fact, when there is no possible closer goal, it seems that K\(_{\text{um}}\) will find the features of the possessor. This seems to be what is happening in the genitive version of Icelandic partitives. The example from above is repeated below:

\[(43) \text{Sum-ar } \text{þess-ara stóru bóka } \text{eru græn-ar.} \]

\[\text{some.NOM.PL these.GEN.PL big-CM(DEF) book.GEN.PL are green-NOM.PL} \]

‘Some of these big books are green.’

In this example, I assume that the KP \(\text{þessara stóru bóka}\) receives genitive case because it is a possessor. However, there is no (overt) noun serving as possessum in the construction. Thus, when K probes, the only possible values for gender and number that it can find are the values of KP \(_{\text{poss}}\). This is schematized below:
Abstracting away from the specifics of the structure, Icelandic genitive possessors seem to be a case where the concord relationship of possessum KPs is *not* independent of possessor KPs. When the possessum KP does not have gender or number features of its own, it must look elsewhere.

This is also what we saw in dative partitives in Icelandic: The quantifier-like element only shows concord with the lower elements when it lacks gender (and number) features of its own. Recall that we saw examples where a noun (e.g. *helmingur* ‘half’) appeared to occupy the position of a quantifier:


‘Half of these big books are green.’

In the example above, the quantifier-like element does not share any features with the embedded KP. What we I just showed about possessors in Icelandic sheds light on what the full structure of dative partitives is. Just as with the genitive partitives, I propose that dative partitives involve two fully articulated KPs. Thus, the structure for the partitive in (46) would be something like the one below (abbreviated for space reasons):

(77) *helmingur af þessum stóru bókum* ‘half of these big books’
Because *helmingur* is closer to K₁ than K₂ is, the features that K₁ finds via AGREE are the features of *helmingur*. However, if there are no features in between K₁ and K₂ (i.e., when the quantifier is not a noun, but a Q like *sumar*), then the features of K₂ become the closest, and K₁ thus enters AGREE with K₂. In those cases, I assume that the structure is the same, but the N is null both phonologically and featurally, just as in the genitive partitive in (76). It is only when closer features are not available that the features of the lower KP are expressed in the higher KP.

To recap, the fact that possessors are not problematic for my account relies on two language-particular facts about Icelandic: possessors are low and nouns move to a position higher than possessors in the syntax. In a language where possessors are high or nouns do not move above them, the analysis here runs into trouble, as the K₂um would potentially find features on KPposs before it finds the features of N or Num. One possibility could be that high possessors are too high (say, in Spec,KP) to be possible goals for K, but this may not work for every language.²⁵ Possessors are a key place where the utilization of AGREE in this analysis may lead to problems, but I must leave further investigation to future work.

### 5.2 Re-thinking AGREE and agreement

#### 5.2.1 Bare Phrase Structure

In §3.2, I argued that one of the reasons AGREE was not well suited to explain concord on its own due to the requirement of c-command. In particular, elements which are not traditionally assumed to be in a c-command relationship with the N (specifiers and adjuncts) can in fact appear to agree with N. Given that some of these elements are only single words, we should consider how the problem would look assuming Bare Phrase Structure (BPS) (Chomsky, 1995).

²⁵Thanks to Amy Rose Deal (p.c.) for this idea.
In BPS, the distinction between maximal and minimal projections is not represented in labels. Two labels merge, and one them projects, resulting in another instance of the same label. Thus, a PP with a DP complement, which would traditionally be rendered as in (78), would be rendered as in (79) in BPS:

(78) P → PP
      ↓ P in
     DPP
     ↓ D
     the
     ANP
     ↓ A
     beautiful NP

It is clear in (79) that the adjective head *beautiful* commands the noun *table* under all standard definitions of command, but the same cannot be said for the adjective in (78).

Given that maximal and minimal projections are no longer represented in labels, the definition of Agree needs to be modified slightly so that it no longer references maximal and minimal projections. A reformulation is given below:

(80) Agree: A label X agrees with a label Y only if:
    a. X c-commands Y,
    b. There is no label Z such that X c-commands Z, Z c-commands Y, and Z has φ-features (i.e., there are no “interveners.”)
    c. X and Y are contained in the same phases.
    d. Both X and Y possess uninterpretable features (i.e., are “active”)

An N could serve as a goal for an A probe in BPS because the c-command requirement is met under this definition of Agree. For single word adjectives, this works perfectly, and for adjectives modified by degree words or with PP complements, we merely need to say that all instances of a label share features. Assuming that A projects in both of those instances, this would work. This account is schematized below:

Formally, Chomsky (1995) differentiates adjunction and complementation, but this is only in the kind of category that is made when an adjunct joins. In other words, the “N” made when *beautiful* combines with *table* is not the same category as the “N” that is made when *table* combines with a complement like the PP of *flowers*. It is not clear how this category distinction would affect a notion such as c-command, which is the focus of the current discussion. For this reason, I will set aside this distinction for the remainder of this section.

In the tree below, I have not depicted the movement of N through Num up to d for simplicity. Given the obliteration of the distinction between heads and maximal projections in BPS, it is not clear what status “head movement” has in the theory, nor is it clear to me how to distinguish between a complex head and a “regular” tree. Presumably, such distinctions are meaningless within the theory, but I do not treat this issue here. Furthermore, I simplify matters by assuming that N has both gender and number features, rather than having separate N and Num heads.

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26Formally, Chomsky (1995) differentiates adjunction and complementation, but this is only in the kind of category that is made when an adjunct joins. In other words, the “N” made when *beautiful* combines with *table* is not the same category as the “N” that is made when *table* combines with a complement like the PP of *flowers*. It is not clear how this category distinction would affect a notion such as c-command, which is the focus of the current discussion. For this reason, I will set aside this distinction for the remainder of this section.

27In the tree below, I have not depicted the movement of N through Num up to d for simplicity. Given the obliteration of the distinction between heads and maximal projections in BPS, it is not clear what status “head movement” has in the theory, nor is it clear to me how to distinguish between a complex head and a “regular” tree. Presumably, such distinctions are meaningless within the theory, but I do not treat this issue here. Furthermore, I simplify matters by assuming that N has both gender and number features, rather than having separate N and Num heads.
While BPS has positive results with respect to the c-command requirement, it does not change the fact that AGREE is a top-down relationship. As such, it cannot get off the ground in explaining case concord. One approach to that would be to consider a version of AGREE that can search up the tree as well as down. Let us turn to such an approach now.

5.2.2 Baker (2008): AGREE and c-command

In his book, Baker (2008) aims to provide a unified account of various kinds of agreement, though is primary focus is on the behavior of verbs, adjectives, and nouns in predicate position. As a result of the structure he proposes for (parts of) predicative sentences like ‘Girls are tall’ (82), Baker changes the c-command requirement of AGREE to the one given in (83):

(82) The girls are tall.

(83) AGREE: X agrees with YP, YP a maximal projection, only if:

a. X c-commands YP or YP c-commands X.

(Baker 2008, p. 45, see also Reuland 2001)

If AGREE can apply backwards in this way, then we may have a way to account for case concord— it is “backwards” probing. Consider a structure like the one in (84):

(84) af]ess-um litl-um snigl-um ‘of these little snails’
In (84), assume that P assigns dative case to its complement KP after it merges. At that point, none of the heads within the KP have a value for case. Under standard assumptions, there is no way for them to acquire a case value via AGREE. Under Baker’s (2008) assumptions, it could be possible. The only assumption we would need to make is that a node can c-command elements that it dominates (see Barker and Pullum (1990)). Under this view of c-command, KP would c-command all of the nodes in (84) that need case values, and an AGREE relationship could be established to transmit those features.

This rethinking of c-command would also allow us a way to get the proper features for adjuncts and specifiers. The A in (84) could simply probe upwards for all of its features, whereas a head like Dem could probe down for gender, as Dem c-commands N. Formally, this seems to attribute a different status to adjuncts and specifiers, as their concord would be cashed out in a different way. While it is true that having the theory capture our intuitions is not a necessity, I believe it is desirable. This asymmetry in how concord is cashed out for various structural positions might give us cause to disprefer this analysis.

5.2.3 Rethinking AGREE: Summary

At their core, both of the options presented here are ways of subverting one of the structural requirements imposed on AGREE. Because BPS eliminates the difference between heads and maximal projections, every phrase that is in a specifier position or adjoined to the main spine of the tree can behave exactly as a head as far as AGREE is concerned, which all but nullifies the requirement of c-command. Baker’s (2008) re-envisioning of c-command not only does that, but it removes the “top-down” aspect of the relationship as well. By hypothesis, AGREE is a relationship that is sensitive to structure, and thus, using AGREE to account for a relationship that appears almost entirely blind to structure, like concord, necessarily requires removal or serious weakening of the structural requirements imposed on it.
6 Implications: The phasehood of DP

In addition to various functional heads in the DP, the values for gender, number, and case can also have an effect on the form of the Root in Icelandic. One example of this is given in Table 6. The declension paradigm in Table 6 shows two vowel changes at work: one which is responsible for the alternation between ö/u and a (hereafter, \textit{u-shift}), and the other responsible for the change to e/i (henceforth, \textit{i-shift}). Generally speaking, \textit{u-shift} occurs when \( u \) (phonetically \([\text{y}]\)) is attached to a stem containing \( a \). As long as there are no intervening non-\( a \) vowels, this will turn the \( a \) into \( \ddot{o} [\text{œ}] \) in stressed syllables and \( u \) in unstressed.\footnote{The conditions are not exactly equivalent to stress, but the fine-grained details will not matter for our purposes here. See Gibson and Ringen (2000) for an exploration of \textit{u-shift} within Optimality Theory.} \textit{I-shift} occurs when \( i \) [i] is added to a stem, resulting in what is mostly a vowel fronting process. There are a variety of different vowel changes involved in \textit{i-shift}, and some examples are given below:

\begin{align*}
\text{Alternation} & & \text{Example} \\
\ddot{o}/a & \sim & e & \text{köttur} \sim \text{kettir} & \text{‘(male) cat \sim (male) cats’} \\
\ddot{j} & \sim & i & \text{björn} \sim \text{birnir} & \text{‘bear \sim bears’} \\
\ddot{a} & [\text{au}] & \sim & \ddot{e} & [\text{ai}] & \text{sláttur} \sim \text{slættir} & \text{‘beat \sim beats’}
\end{align*}

The processes of \textit{u-shift} and \textit{i-shift} are widespread in the language, occurring in both nouns and verbs. However, neither process can be driven by phonology alone. While \textit{u-shift} is most commonly triggered by addition of \( u \) to the stem, there are cases of \textit{u-shift} that do not involve a surface \( u \) as well as cases that involve a surface \( u \) that do not involve \textit{u-shift}. The very same is true for \textit{i-shift}.\footnote{In the cases of overapplication, there is no reason to posit an underlying \( u \) or \( i \) other than to attempt an explanation of the presence of \textit{u-shift} or \textit{i-shift} in those forms. That is to say, it is not as though the \( u \) or \( i \) surfaces sometimes and is deleted in others— these are truly cases where the rule seems to apply for no (phonological) reason.}

(86) \textit{u-shift}


b. Overapplication: \textit{glað} \sim \text{glōð} ‘glass \sim glasses’, \textit{glōð} ‘glad \text{(NOM.F.SG)}’

(87) \textit{i-shift}


b. Overapplication: \textit{bóndi} \sim \text{bændur} ‘farmer\sim s’, \textit{kú} \sim \text{kýr} ‘cow.ACC \sim cow.NOM’

However, the application of both of these rules \textit{can} be entirely predicted on the basis of morphosyntactic features. For example, among other places, \textit{u-shift} occurs in both nominative plural
and accusative plural for all neuter nouns, and i-shift occurs in dative singular, nominative plural, and accusative plural for a particular declension class of masculine nouns (including björn ‘bear’ from above).

Under standard DM assumptions, Roots are not subject to VI. Thus, these morphophonologically conditioned stem vowel changes cannot be captured by competition for insertion. Instead, they must be captured with Readjustment Rules. Readjustment Rules are triggered by particular heads (often with particular features) causing a change in the shape of a functional morpheme that does not appear to be attributable to a particular (set of) feature(s). As mentioned, since Roots are by hypothesis not subject to VI, Readjustment Rules must also be responsible for alternations in Roots. Embick (2010) notes that a single Readjustment Rule could apply in a wide variety of environments, so if we allow Readjustment Rules into the theory, it seems natural to treat both u-shift and i-shift as Readjustment Rules, given that they apply to both verbs and nouns.30

In Embick’s (2010) theory of contextual allomorphy, he hypothesizes that two notions are relevant for contextual allomorphy: linear adjacency and cyclicity. The linear adjacency requirement is cashed out in the form of Vocabulary Items: they can only make reference to morphemes that are linearly adjacent to the target of insertion in Embick’s system. In contrast, Readjustment Rules do not seem to be subject to this strict linear condition, but Embick hypothesizes that they may be subject to considerations of cyclicity:

(88) **READJUSTMENT ACTIVITY HYPOTHESIS (RAH):** A Readjustment Rule triggered by morpheme X (the trigger, MN) can effect a Root- or morpheme-specific change only when X and the Root/functional head (the target, MN) are in the same PF cycle.

If we wish to adopt the RAH, the data from ablaut in Icelandic Roots in nominals provide evidence against the claim that DP is a phase. I will now turn to this issue.

### 6.1 PF cycles and spell-out

Embick is very explicit about his assumptions about spell-out and PF cycles. For our purposes, it is enough to consider the predictions made by the **ACTIVITY COROLLARY**:

(89) **ACTIVITY COROLLARY (AC):** In \[\ldots [x] y\], x, y, both cyclic, material in the complement of x is not active/present in the PF cycle in which y is spelled out.

The highest head in the nominal projection is often taken to be D, and thus arguing that DP is a phase is equivalent to saying that the highest nominal projection constitutes a phase. For my analysis, that would mean that K is a cyclic head instead of D. For the remainder of the discussion, I will treat K as the cyclic head rather than D, but as far as I can tell, what I will say would still be applicable if one wanted to maintain that the phase was still DP even though D is not the highest

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30Of course, this begs the question whether or not we should allow Readjustment Rules into the theory. They are, after all, very powerful, and they do not have much explanatory power. On the other hand, the phenomena that they are best suited to describe (e.g., ablaut and other kinds of suppletion) might not need a deeper story than Readjustment Rules provide. However, unless we dispense with the hypothesis that Roots are not subject to VI, there is no other good way to capture Root changes. If we do dispense with that hypothesis, then the arguments not specific to Readjustment here would still apply: the Root is already inaccessible by the time all feature values, which are needed to determine its form, are known.
head in the nominal projection under my analysis. Thus, assuming KP is a phrase, in the case of Icelandic nominals, $x$ is $n$, and $y$ is $K$.$^{31}$

Under Embick’s theory, when $K$ is merged, any phases in the complement of $K$ undergo spell-out. The only phase in the complement of $K$ is the phase headed by $n$, thus $n$, its complement (the Root), and the non-cyclic heads between $K$ and $n$ undergo VI and/or are processed phonologically.

(90) \[ \text{KP} \]

\[ \begin{array}{c}
\text{K} \\
\text{DP} \\
\text{D} \\
\text{...} \\
\text{Num} \\
\text{nP} \\
\text{n} \\
\sqrt{BJÖRN}
\end{array} \]

Crucially, $K$ is not present at this cycle of PF, and thus, it does not undergo spell-out. It is not until a higher cyclic head is merged that $K$ undergoes spell-out. According to the AC, the complement of $n$ is not present in the PF cycle in which $K$ is spelled out. When a higher cyclic head is merged (say, $z$), $K$ is spelled out, but the root is no longer present at PF (symbolized with strikeout):

(91) \[ \begin{array}{c}
zP \\
z \\
\text{...} \\
\text{K} \\
\text{DP} \\
\text{D} \\
\text{...} \\
\text{Num} \\
\text{nP} \\
\text{n} \\
\sqrt{BJÖRN}
\end{array} \]

Since $i$-shift and $u$-shift are driven by morphosyntactic features, it is reasonable under my analysis to hypothesize first that it is $K$ that triggers the Readjustment Rule. However, if we adopt RAH, $K$ cannot be the trigger for Readjustment Rules associated with $i$-shift or $u$-shift, because both the trigger and target must be present in the same PF cycle, and there is no way to get the Root and $K$ to be present in the same cycle if $K$ is cyclic.

However, perhaps it is not $K$ that triggers the Readjustment Rule, but some non-cyclic head between $K$ and $n$, like Num or a post-syntactic AGR node adjoined to one of the heads. These heads would indeed be present in a PF cycle along with the Root, as when $K$ is merged, everything in its complement is sent to PF (see (90)).

Unfortunately, while it is true that non-cyclic material between $n$ and $K$ would be present in the same PF cycle as the Root, it is not clear that these heads would possess the relevant features.

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31To be clear, Embick (2010) only directly claims that the phases defined by category-defining heads are relevant for the morphology. However, he does consider the ramifications for spell-out under theories where non-category-defining heads such as $T$ or $D$ are cyclic, which suggests that phases defined by non-category-defining heads could be the same as phases defined by category-defining heads.
necessary to trigger the Readjustment Rules. Under my theory, these heads acquire the relevant features from K via Feature Copying at PF. By hypothesis, the features of gender and number surface on K via AGREE, and case is assigned to K by whatever takes the KP as an argument. In the simplest case, a head assigns a particular case to its argument. Perhaps it is possible for K to enter into the AGREE relation with N and Num before triggering spell-out of its complement, but even if that were possible, K would not have its case value until the next head is merged. These steps are schematized below

(92)  a. K is merged: complement undergoes spell-out

```
KP
  K
    [???
      FEM
      PL
    ]
  to spell-out
```

b. P is merged: P assigns DAT to K, but complement of K has already been spelled out.

```
PP
  P
    af
  KP
    K
      [DAT
        FEM
        PL
      ]
    (already spelled out)
```

Even if Feature Copying could proceed before any spell-out occurred, the set of features copied would lack case and thus be incomplete. Thus, it does not appear to be possible to have the Readjustment Rules of *u-shift* and *i-shift* triggered by a non-cyclic head in between cyclic n and cyclic K, as those heads would not possess the feature values required to trigger the Readjustment Rules. If we want to preserve the RAH, then KP simply cannot be a phase.

In fact, even if we do not prioritize preserving the RAH, we still must make some costly assumptions in order to maintain the claim that KP is a phase. This discussion began by looking at processes of ablaut in Icelandic nominals, which are triggered by particular combinations of feature values. All of these features must be set before the ablaut Readjustment can occur. Importantly, these feature values must also be set in order to spell-out all of the AGR nodes in between the Root and K. Even if K's feature values could be copied onto the AGR nodes before they undergo the spell-out triggered by K, K would not yet have a value for case, and thus the feature set would be incomplete. Even if my analysis of concord is not adopted, it still seems as though the existence of case concord suggests that KP/DP is not closed off, at least to morphology, as soon as the K/D head is merged (see also Matushansky (2010)). Either KP/DP is not a phase in every language, or if it is a phase, it is not impenetrable to morphology.
7 Conclusions and Broader Implications

As I have already mentioned, much previous work on concord has had the goal of explaining concord using the same mechanisms as A-P agreement, which gives formal teeth to the idea that concord is the nominal domain equivalent of A-P agreement. I have tried to show here that such a view is incorrect, and thus, there is no a priori reason to analyze concord using the same theoretical machinery as A-P agreement. Taking this one step further, if concord is not the correlate of A-P agreement in the nominal domain, we would hope to find something that is. Likewise, we would expect to find something in the verbal domain that has similar properties to concord.

7.1 Agreement in Different Domains

7.1.1 A-P agreement in the Nominal Domain: Possessor Agreement

One promising candidate for the correlate of A-P agreement in the nominal domain is possessor agreement. Possessor agreement is when the possessum bears features of the possessor, often as a suffix, and it is seen in many languages, e.g., Turkic languages, Mayan languages, Hungarian, Chamorro (Chung, 1982), and Irish (Jim McCloskey, p.c.). Some examples from Azerbaijani (Turkic) are given below:

(93) Azerbaijani (Anie Thompson, p.c.)

    a. biz-im dovšan-imız  
       we-GEN rabbit-POSS.1PL  
       ‘our rabbit’
    b. sœn-in alma-n  
       you-GEN apple-POSS.2PL  
       ‘your apple’

Possessor agreement looks like A-P agreement for several reasons. First, possessor agreement involves person features, which are never present in concord, but very common in A-P agreement in the verbal domain. Second, the features only get marked on one head in the general case. The possessor agreement suffix is present only on the noun and does not surface on modifiers of the noun. Finally, all of the feature values originate from the possessor, which is (at least in some analyses) a DP-argument (of D). These are all aspects of A-P agreement and not concord.

Further support for this parallelism comes from the fact that, in some cases, there is significant morphological overlap in the possessor agreement and verbal agreement paradigms. For example, in Mayan languages, there is one set of markers (traditionally called set A in Mayan linguistics) that is used both for agreement with ergative subjects and for possessor agreement. Coon 2010 and Aissen 1992 propose analyses that unify possessor domains with verbal domains as a way of cashing out this notion.

There are even cases where both concord and possessor agreement are present in the same language. Finnish is one such case. In Finnish, elements of the DP must show concord in number and case (see (94)). In addition, possessed nouns bear suffixes indicating the person and number of the possessor (see (95)). These suffixes appear outside of case marking (see (95c)). However, modifiers do not bear the possessive suffix when both are involved (see (96))

(94) Concord in number and case in Finnish

    a. tuo punainen kukka
       that red flower

43
‘that red flower’

b. tuo-ssa punaise-ssa kuka-ssa
    that-INE red-INE flower-INE
    ‘in that red flower’

c. no-i-lla punais-i-lla kuk-i-lla
    that-PL-ADE red-PL-ADE flower-PL-ADE
    ‘with those red flowers’

(95) **Possessor agreement in Finnish**

a. (minu-n) kirja-ni
    I-GEN book-POSS.1SG
    ‘my book’

b. (teidän) auto-nne
    you.PL-GEN car-POSS.2PL
    ‘your (pl.) car’

c. auto-lla-ni
    car-ADE-POSS.1SG
    ‘with my car’

(Adapted from Karlsson, 1999)

(96) **No possessor agreement on modifiers**

a. iso-ssa talo-ssa-ni
    big-INE house-INE-POSS.1SG
    ‘in my big house’

b. * iso-ssa-ni talo-ssa-ni

(Daniel Karvonen, p.c.)

c. punaise-ssa auto-ssa-ni
    red-INE car-INE-POSS.1SG
    ‘in my red car’

d. * punaise-ssa-ni auto-ssa-ni

(Daniel Karvonen, p.c.)

The appearance of both concord and possessor agreement in the same language is particularly telling. It seems quite reasonable to say that they are probably not both nominal domain correlates of A-P agreement. Based on the fact that possessor agreement shares many more properties with A-P agreement than concord does, it is unclear why any tenable analysis would choose concord as the correlate over possessor agreement.

### 7.1.2 Concord in the Verbal Domain

In contrast, concord in the verbal domain is much more difficult to find. Descriptively, concord in the verbal domain would involve various elements of the verbal domain (including heads like v, T, and C, as well as adverbs) expressing features of the verbal domain (e.g., voice, aspect, tense, or mood). An example of this comes from Maori, where adverbs of manner bear particular suffixes when they modify passive verbs:

(97) I peehi-a rawa-tia ngaa waahine
    T/Asp oppress-PASS intensifier-PASS the.PL women
‘The women were severely oppressed.’ (Bauer, 1993, p. 92)

Such examples seem to be very rare cross-linguistically. As for why that might be, I unfortunately have nothing substantial to say at this point. It may also be that concord exists in the verbal domain, but looks a little bit different. Notice, the verbal domain is special in that, in addition to having some of its own features, it also commonly acquires features from its DP arguments. Thus, it may be that concord in the verbal domain is more commonly manifested in the sharing of these acquired nominal features. Corbett (2006) gives several examples of agreeing adverbs, and this agreement is in nominal features, not verbal features:

(98) Archi (Daghestanian, Corbett (2006), citing Kibrik 1994)
   a. buwa-mu  b-ez  dīfa<-b>u 重工 alli  a<-b>u
      mother(II)-ERG III-1SG.DAT early<III>  bread(III)[ABS] made<III>
      ‘Mother made bread for me early.’
   b. dija-mu  ez  dīfa<t’>u nokl’  a<-∅>w
      father(I)-ERG [IV]1SG.DAT early<IV>  house(IV)[ABS] made<IV>
      ‘Father made a house for me early.’

In the above examples, the adverb ‘early’ agrees in gender/noun class with the absolutive argument. Based on these examples, this kind agreement in Archi shares properties with both A-P agreement and concord. It is like A-P agreement in that the agreeing features (gender/noun class) all come from a DP argument of the verbal projection. However, it is like concord in that the features are expressed on many different elements, including the adverb and the benefactive argument of the verb (ez in (??)). If the picture I have sketched of nominal agreement is on the right track, namely, that there are (at least) two kinds of agreement, then it opens the door for future work to give a detailed investigation of the different kinds of agreement in the verbal domain, and in particular, when they overlap.

7.2 Towards a Cross-Linguistic Theory

In this paper, I have focused my empirical study on Icelandic, but the ultimate goal is, of course, to have a theory of concord that generalizes to all languages. In this section, I briefly discuss two different sets of concord facts not present in Icelandic. First, I discuss of-agreement in Bantu (see e.g., Carstens (2000, To Appear)), which is straightforwardly analyzed with the theory developed here. Second, I cover some DP-internal irregular case assignment in Estonian, which cannot be integrated straightforwardly into the account developed here.

7.2.1 of-agreement in Bantu

In Bantu languages (and some Afro-Asiatic languages, e.g., Hausa (Tuller, 1986)), ‘of’ agrees in phrases like cup of coffee (see (99)). Specifically, ‘of’ agrees with the preceding noun, and never the following noun (see (100)). Some examples from Carstens (2000) are given below:

(99) a. kikombe ch-a  kahawa
    c7.cup  c7-of  c9.coffee

---

32 In the Archi examples, I follow Corbett (2006) in using <> to indicate infixed morphemes.
Carstens (2000) states that the ‘of’-phrases (that is, ‘of’ plus the following noun) are KPs, but she does not discuss what the distinction is between a KP and DP is in the theory she assumes. If we assume that these ‘of’-phrases are structurally more like PPs, then under my account, a structure for (99a) would be the following:

(101)  \textit{kikombe cha kahawa} ‘cup of coffee’

\[
\begin{align*}
\text{KP} & \\
\text{K}_1 & \quad \ldots \\
\text{[C7]} & \\
\text{N} & \quad \text{PP} \\
\text{kikombe} & \\
\text{P} & \quad \text{KP} \\
\text{-a} & \\
\text{K}_2 & \quad \ldots \\
\text{[C9]} & \quad \text{kahawa}
\end{align*}
\]

The fact to account for is why P agrees with \textit{kikombe} and not with \textit{kahawa}. In a theory where elements generally agree with something that is lower in the tree, like the theory of feature checking that Carstens (2000) assumes (and like \textsc{agree}), it is completely mysterious that P agrees with something higher in the tree, especially given that something lower in the tree is available. This leads Carstens (2000) to propose that there cannot be a feature checking relationship between P and its complement, because the two were combined by \textsc{merge}:

(102)  \textsc{merge} (x, y) does not trigger a checking or movement relation between x and y.

(Carstens, 2000)
Carstens (2000) does not address how this assumption interacts with other parts of her analysis, in particular, when merging of D and NumP does trigger movement of Num to D and feature checking between the two.

Under the theory advanced here, P agrees with kikombe, because P is not within the c-command domain of the K₂. Since Feature Copying only allows K to transmit features to elements in its c-command domain, my theory does not allow P to acquire the features of K₂ (see (103)). Thus, when AGR node insertion and Feature Copying occurs, P’s features come from K₁. Not only does the theory account for of-agreement in Bantu, but it predicts that this is the only possible way that it could be. This is a welcome result.

(103)

\[\text{KP} \rightarrow \text{K}_1 \rightarrow \ldots \rightarrow \text{N} \rightarrow \text{kikombe} \rightarrow \text{PP} \rightarrow \text{P} \rightarrow \text{\text{\textquoteright}a} \rightarrow \text{K}_2 \rightarrow \ldots \rightarrow \text{kahawa}\]

7.2.2 Irregular cases in Estonian

Icelandic is an ideal language to begin an analysis of concord with, because the system of concord is both rich and well-behaved. Almost every element in the nominal phrase must bear the GNC features of the entire phrase, and in nearly every case, those features pattern together. It is only in particular structures (e.g., partitives), that we see them separate. Obviously, it is crucial that any analysis of concord can account for the cases where the features of concord pull apart in addition to explaining why, for the most part, they do not.

Another example of concord pulling apart is in nominal phrases containing numerals in Slavic and Finnic languages. As in Finnish, elements of nominal phrases must show concord in gender and case (see (104)). However, if a nominal phrase in nominative case contains a numeral, then the material following the numeral must be in partitive case (see (105a)). If the nominal phrase as a whole is assigned any other case, the numeral’s ability to “assign” partitive case disappears (see (105b)).

(104) a. see huvitav raamat
this.NOM interesting.NOM book.NOM
‘this interesting book’
b. selle-le huvitava-le raamatu-le
this-ALL interesting-ALL book-ALL
‘onto this interesting book’
c. nende-le huvitavate-le raamatute-le
this.PL-ALL interesting.PL-ALL book.PL-ALL
The analysis I developed here does not provide a way to explain the apparent partitive case “assignment” by the numeral in any straightforward way as far as I can tell. One possibility is that, descriptively, nominative truly is unmarked in some way in the language. When the entire nominal phrase is in some other case, then every element must show concord in case, but when the nominal phrase is not assigned a particular case, then partitive surfaces in these examples as a sort of default. In this sense, the case assignment data would be an emergence of the unmarked effect: It is only when an unmarked case is assigned that the partitive case surfaces on elements after the numeral. How this could be cashed out theoretically is a question I cannot at present answer.

Finally, an important difference between concord in Icelandic and in Estonian/Finnish is that the concord markers in Icelandic are fusional—there is only one concord marker per word, and each marker expresses all three features (GNC). In Finnish and Estonian, the features of number and case are expressed with separate morphemes. This is difficult to explain under the account sketched here, as there is only one insertion point for the concord features (i.e., there is only one AGR node per head). This suggests that the actual spell-out of AGR nodes must be more complex than a single AGR node account allows, as in DM, only one morpheme is inserted at each terminal node. One straightforward possibility within DM is that AGR nodes undergo Fission to split into the two different feature values, but I leave formalization to future work.

7.3 Conclusion

There are two main goals that I hope to have achieved in this work. On the empirical side, I presented an analysis of concord in Icelandic that was a two-step process. First, GNC feature values are “collected” high in the nominal phrase (gender and number via AGREE and case assignment through whatever mechanism assigns case), and then, those features are copied throughout the nominal phrase at PF. I showed how this analysis accounts for partitives in Icelandic, where gender (and number) concord seems to pull apart from case concord.

Theoretically, I argued that there is good reason to separate concord and A-P agreement from a descriptive standpoint, and thus there is no a priori reason to analyze them using the same theoretical machinery. Whether or not we do combine them depends on the theory of agreement assumed, and I hope to have shown that a theory based on AGREE cannot be extended to concord without weakening (or removing) some of the structural restrictions placed on AGREE. While it is certainly tantalizing to pursue a theory of morphological agreement that can account for all the different forms it takes cross-linguistically, it is certainly not necessary, especially if it is done at the expense of the explanatory power of the theory itself.
Abbreviations

1 first person
2 second person
3 third person
ACC accusative case
ADE adessive case
ALL allative case
CX class X (Bantu gender)
CM concord marker
DAT dative case
DEF definite
DM Distributed Morphology
F(EM) feminine gender
GEN genitive case
GNC gender, number, and case
INE inessive case
M(ASC) masculine gender
N(EUT) neuter gender
NOM nominative case
PAR partitive case
PASS passive voice
PL plural
POSS possessor agreement
PST past tense
SG singular
T/Asp tense/aspect
VI Vocabulary Insertion

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