1. Introduction

This paper concerns two related questions about the nature of agreement in language, and in particular, DP-internal head-modifier agreement, henceforth concord. First, are concord and argument-predicate agreement, henceforth A-P agreement, instances of the same phenomenon occurring in different syntactic domains? In other words, is concord just a form of A-P agreement? Second, how can we use existing theoretical machinery to analyze systems of concord? In this paper, I will investigate both of these questions through the lens of Icelandic, a language with a particularly rich system of concord involving gender, number, and case (GNC) features.1

In Icelandic, almost all elements in the DP must agree in GNC values. This is exemplified in examples (1) and (2) below.2

(1) fjór-ir litl-ir snigl-ar
    four-CM, little-CM, snail-NOM.M.PL
    ‘four little snails’

(2) all-ir hin-ir litl-u snigl-ar-nir mín-ir fjór-ir
    all-CM, other-CM, little-CM,(DEF) snail-NOM.M.PL, the.CM, my-CM, four-CM
    ‘all my other four little snails’

In (1), the numeral fjór ‘four’, the adjective litl ‘little’, and the noun sniglar ‘snails’ all bear CMs indicating the gender, number, and case features of the entire DP. A more complicated version of this DP is given in (2), where there are seven different elements that all express the same GNC values.

Returning to the two questions raised in the first paragraph, I will argue in this paper that A-P agreement and concord are not instances of the same phenomenon occurring in different syntactic domains, at least from an empirical standpoint. As for the second question, I will develop a novel analysis of concord building on research in the framework of Distributed Morphology (DM, Halle (1990); Halle & Marantz (1993)). The paper is organized as follows. In §2, I will present evidence suggesting that concord must be distinguished from A-P agreement, and I will present my analysis of concord in §3. In §4, I will briefly consider the view of concord outside of Icelandic, and I will suggest that the true correlate of A-P agreement in the nominal domain is possessor agreement, not concord. I conclude in §5.

1First and foremost, I thank my advisor, Jorge Hankamer, for his guidance and support on this (and other) research. Thanks also to many others who have helped to shape this work: Sandra Chung, Donka Farkas, Vera Gribanova, Ruth Kramer, James McCloskey, Matthew A. Tucker, participants of UCSC’s Morphology Reading Group and UCSC’s 2011 Research Seminar, and audiences at LASC 2011 and WCCFL 29. Any errors lie with me.

2Abbreviations: 1 (first person), 2 (second person), 3 (third person), A-P (Argument-Predicate), ALL (allative case), CM (concord marker), DAT (dative case), DEF (definite/definiteness “agreement”), DM (Distributed Morphology), FC (Feature Copying), GEN (genitive case), F(EM) (feminine gender), GNC (gender, number, and case), INE (inessive case), M(MASC) (masculine gender), N(EUT) (neuter gender), NOM (nominative case), PAR (partitive case), PL (plural number), POSS (possessor agreement), PST (past tense), SG (singular number)

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2. Concord versus A-P agreement

In a broad sense, concord and A-P agreement are very similar. They both involve features of some element being morphologically marked on another—that is, they are both forms of agreement. However, they canonically occur in different domains: we see concord in the nominal domain and A-P agreement in the verbal domain. Following a long line of syntactic research aiming to draw parallels between the verbal and nominal domain, much of the previous work on concord seems to presuppose that concord and A-P agreement are instances of the same phenomenon occurring in different syntactic domains (see, e.g., Carstens (2000); Corbett (2006); Baker (2008); Kramer (2009); Danon (To Appear)). However, there are some important differences between the two.

First of all, the two processes canonically involve different features. Concord can involve features of gender, number, and case, whereas A-P agreement commonly involves features of gender, number, and person. Furthermore, although Icelandic has a robust grammatical gender system, gender plays no role in agreement between subjects and tensed verbs. We can see this in the examples below, where the subjects have different gender, but the agreement is the same.

(3) a. Maður-inn elskaði / elskaði snigl-a
   man.NOM.M.SG-3SG love-3SG snail-ACC.PL
   ‘The man loves/loved snails.’

   b. Kon-a-n elskaði / elskaði snigl-a
      woman-NOM.F.SG-3SG love-3SG snail-ACC.PL
      ‘The woman loves/loved snails.’

   c. Barn-ið elskaði / elskaði snigl-a
      child.NOM.N.SG-3SG love-3SG snail-ACC.PL
      ‘The child loves/loved snails.’

Second, concord generally shows up on more elements in more syntactic positions than A-P agreement does. A-P agreement generally shows up on heads in the main spine, like verbs or auxiliaries, and it is usually only seen on one or two elements, with one being the general case. On the other hand, concord can show up on heads in the main spine (e.g., D), on specifiers (e.g., numerals) and adjuncts (e.g., adjectives), and the canonical case is for concord to be shown on several items. We already saw that, in Icelandic, concord can show up on as many as seven items, and like English, subject-verb agreement only shows up on the highest modal/auxiliary in a tensed clause (ignoring participles). Finally, and I believe most strikingly, the features come from different places. In A-P agreement, the features come from a nominal argument of one of the verbal heads. In concord, the features involved are the features of the very projection where they are expressed. This is summarized in the table below.

<table>
<thead>
<tr>
<th>A-P AGREEMENT</th>
<th>CONCORD</th>
</tr>
</thead>
<tbody>
<tr>
<td>feature</td>
<td>origin</td>
</tr>
<tr>
<td>gender</td>
<td>DP-argument</td>
</tr>
<tr>
<td>number</td>
<td>DP-argument</td>
</tr>
<tr>
<td>person</td>
<td>DP-argument</td>
</tr>
</tbody>
</table>

Table 1: The origins of features participating in concord and A-P agreement

Taking these ideas into consideration, the view that I adopt here is that what we have is not one kind of agreement occurring in two different domains, but two distinct forms of agreement. A-P agreement is indicative of a particular syntactic relationship between a head and one of its arguments (e.g., c-command or Spec-Head), and this relationship is an exchange: the argument gets case and the verb bears agreement agreement

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3Baker (2008) brings up one counterexample to this claim from constructions in Bantu languages like *ninýi nyote* ‘you(PL) all’ (from Swahili), where the quantifier *nyote* agrees in person with the pronoun that it modifies. Still, such examples are rare.

4Whether adjuncts show concord depends on what analysis we adopt for adjectives. If we adopt a Cinque (1994)-style account, then concord might not appear on adjuncts, but adjectives would be another example of a specifier.
features. On other hand, concord is not indicative of the same kind of syntactic relationship, as elements in a wide variety of syntactic positions can bear features from concord. Instead, concord is the expression of features of a DP by the elements inside that DP, or more generally, concord indicates “membership” in a particular projection.

3. Concord in Icelandic: Analysis

Even though the features of concord come from different places within the nominal projection, they still pattern together. For example, following e.g., Carstens (1991), I assume grammatical gender is an inherent property of nouns, so in a sense, the feature value begins low and must percolate its way up the tree. On the other hand, morphological case is assigned based on the DP’s syntactic position, that is, which head takes it as an argument. Thus, the feature value is assigned high and must percolate its way down the tree. Still, all elements showing concord in Icelandic vary in form based on gender, number, and case, and not a subset of those features depending on the element’s location within the DP. This behavior is what I refer to as the features “patterning together.” In this section, I will lay out an analysis of concord that captures this generalization by “collecting” the feature values (in a sense to be made clear momentarily) in one place in the narrow syntax and then distributing those values to the various heads showing concord at PF.

To begin, I assume that the highest head in a DP is a KP (à la Lamontagne & Travis (1987); Bittner & Hale (1996)), and that this K has unvalued/uninterpretable feature for gender and number, rendering K a probe. When K is merged, it probes into its c-command domain to find values for gender and number, which, for simplicity, I assume it finds on N and Num. Once the entire KP gets a value for case, K will possess values for all three features, as schematized below in (4), where the dotted lines indicate an Agree relationship. This is what I descriptively refer to as “feature collection,” as all of the features are collected in one place. I should point out that this requires a version of Agree that allows the same probe to find values on different heads (e.g., Multiple Agree(Hiraiwa, 2001)). There are a variety of ways that we could conceptualize this “feature transmission,” but for reasons of space, I will simply adopt this version without further discussion.

(4) PP
  /   |
 /    | K
PP af KP
    / |
   / | DP
  / |  ...
 / |
 / | D
 / |
 / | Num
    / |
    / | NP
    / |
    / | n(P)

Modulo other syntactic processes, this is the structure that is sent to the PF interface.

At PF, I adopt a view of agreement from DM. The various heads showing concord trigger insertion of AGR (for “agreement”) nodes (Noyer, 1997), as represented by the schematic below:

(5) AGR node Insertion schema

\[
X \rightarrow [X \ AGR]
\]

It is important to note that what I have given in (5) is only intended to be a schematic for the idea that AGR nodes are adjoined directly to heads. It is not a context-free rule. Rather than being a triggered by a rule, I believe it is best to think of AGR node insertion as being head-driven. That is to say, it is the individual heads themselves that trigger insertion of an AGR node. For further discussion, see Norris (2011).
After AGR nodes are inserted, the values from K are copied onto the AGR nodes via a rule of Feature Copying, as written below:

(6) **Feature Copying**

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

By doing the feature distribution in the morphology, we can capture the intuition that concord is not sensitive to syntactic relationships in the same way as A-P agreement. The heads do not acquire their features through syntactic operations alone, so we would not expect them to be particularly sensitive to syntactic position. Furthermore, we gain an understanding for why the features of concord pattern together. The features pattern together, because they are copied from the same source.

Analyzing concord with AGR nodes distinct from the actual words to which they attach gives teeth to two generalizations about concord markers in Icelandic. First, concord usually surfaces as suffixes attached to an invariant stem. That is to say, for the most part, the only thing that varies based on GNC features is the concord marker, while the stem/Root stays the same. Second, the same set of concord markers appears attached to a wide variety of syntactic heads. Having AGR nodes distinct from the stem allows the AGR morphemes to be completely independent of the heads they attach to while allowing for the possibility of being dependent on the stems as well. Furthermore, separating concord markers from stems means that we only need different lexical entries or Vocabulary Items for the different concord markers, and not different roots or Vocabulary Items for each form that the combination of stem and concord marker can take.

### 3.1. Interim Summary

At the beginning of this paper, I gave several reasons for why we should distinguish concord and A-P agreement from an empirical or descriptive standpoint. However, the analysis I just proposed still makes use of AGREE, which is the mechanism behind A-P agreement—and, arguably, all other forms of agreement—in Minimalist frameworks (Chomsky, 2000, 2001). It is worth noting that the relationship here is slightly different, as AGREE is not established directly between the heads showing concord and the origin of the feature values. The distinction is represented schematically in the structures below:

(7) Direct AGREE-ment (=A-P agreement)

\[
\begin{array}{c}
\text{YP} \\
\text{XP} \\
\text{X} \\
\text{[GNC]}
\end{array} \quad \begin{array}{c}
\text{YP} \\
\text{Y} \\
\text{[GNC]}
\end{array} \quad \begin{array}{c}
\text{NP} \\
\text{N} \\
\text{[GNC]}
\end{array}
\]

(8) Indirect AGREE-ment (=concord)

\[
\begin{array}{c}
\text{KP} \\
\text{K} \\
\text{X} \\
\text{[GNC]}
\end{array} \quad \begin{array}{c}
\text{YP} \\
\text{Y} \\
\text{[GNC]}
\end{array} \quad \begin{array}{c}
\text{NP} \\
\text{N} \\
\text{[GNC]}
\end{array}
\]

Let us temporarily assume that the head nouns of nominal phrases possess the necessary values for GNC features. In (7), the heads X and Y, which are expressing the same GNC values, enter into individual AGREE relationships with the N head. It is worth noting that, under standard assumptions, the head X (of the adjunct XP) is not actually in the appropriate structural position to enter into an AGREE relation with N. This is arguably true in (7), but certainly true if that X were to be further embedded in the adjunct or if it had a complement. As mentioned in section 1, items showing concord are not sensitive to structure in the same way as items showing A-P agreement.

In contrast, in (8), the heads that actually show concord (i.e., have CMs) do not actually establish an AGREE relationship with the head N. Thus, we would not expect their structural position relative to

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5To my knowledge, there is not much work addressing the question of how Feature Copying should be formalized or carried out. In Kramer’s (2009) dissertation, it is simply stated as a prose rule, much like what I have given here.
the N to matter at all. Still, the stronger claim would be to remove AGREE from the analysis of concord entirely. However, the agreement patterns in Icelandic partitives suggest that something like AGREE is at work in concord. Let us turn to these examples now.

3.2. Concord in Icelandic partitives

In Icelandic partitives, the gender concord appears to reach farther than case concord:

(9) **sum-ir af þess-um litl-u snigl-um eru gul-ir.**

Some of these little snails are yellow.  

(10) **sum-ir þess-ara litl-u snigl-a eru gul-ir.**

Some of these little snails are yellow.

In the above examples, the quantifier surfaces in nominative case, but the rest is in either dative (9) or genitive (10) case. However, the gender of sumir must match that of the N, snigill ‘snail’. If snigill is changed to a feminine or neuter noun, sumir changes as well. Some examples are given in (11).

(11) a. **sum-ar af þess-um borg-um**

Some of these cities

b. **sum-∅ af þess-um dyr-um**

Some of these animals

In my proposal, elements get their GNC features from K heads via Feature Copying at PF. Therefore, the mismatch in case (and the matching in gender) must be attributable to features of K heads. The structure I assume for the dative partitive in (9), simplified for clarity, is given in (12):

(12)

Because there are two values for case, my analysis would require two KPs. KP₁ is nominative, because it is in subject position of a root copular clause. KP₂ is dative because it is the argument of the preposition af ‘of’, which always assigns dative case. As for gender and number, I proposed that K heads get features

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6 The word sum- as in the examples below is a partitive some—that is, it has a meaning similar to “some (but not all).” Icelandic uses the word einhver for the cases where English uses the singular some, as in “Some man walked into the store.”

7 A discussion of the agreement seen in genitive partitives is given in Norris (2011). Briefly, I assume the partitive phrase (e.g., the DemP in genitive case) is assigned structural genitive case by virtue of being in possessor position (Spec,NP for Icelandic (Sigurðsson, 1993; Julien, 2005; Norris, To Appear)).
for gender and number by probing into their c-command domains. Thus, $K_2$ gets its values from the $N$ and $Num$ inside the $DemP$. When $K_1$ probes, the first values for gender and number that it finds are those on $K_2$, and thus, it is valued $MASC$ and $PL$ as well. Though there are two cases assigned, there is only one value for gender and number present, and thus, the quantifier *sumir* matches the gender and number of the elements in the partitive phrase.

There are also cases where the quantifier does *not* match the gender or number of the embedded DP. When quantifiers (or phrases serving as quantifiers) have specifications for gender/number, $K_1$ finds those values when probing instead of the features of $K_2$. We can see this in the examples below. In (13), the quantifier-like element agrees in gender, but not number, and in (14), the quantifier-like element does not agree in any features with the head noun of the partitive phrase.

(13) ein af þess-um borg-um
    one NOM.F[SG] of these-CM_i city-DAT.F.PL_i
    ‘one of these cities’

(14) helming-ur af þess-um borg-um
    half-NOM[ML SG] of these-CM_i city-DAT.F.PL_i
    ‘half of these cities’

If the structure given in (12) is on the right track, these quantifier-like elements are closer to $K_1$ than $K_2$ is, so when $K_1$ probes, it would find those values first. It is only when the quantifier lacks features of its own that $K_1$ probes far enough to find the features on $K_2$. When the quantifier is nominal (like *helmingur*), its gender feature is closer to $K_1$ than the gender feature value of the partitive phrase on $K_2$, so we do not see gender agreement between the two. It should come as no surprise that these nominal quantifiers can show concord of their own that is fully independent of the noun inside the partitive phrase. We can see this in the example below, where *tveir* shows concord with *þriðjungur* (MASC), not *borg* (FEM).

(15) Tveir þriðjung-ar af þess-um borg-um
    two[PL] third[NOM.M] of these-CM_i city-DAT.F.PL_i
    ‘two thirds of these cities’

The only reason that concord appears to pull apart (in that, e.g., *sumir* agrees in gender and number but not case) is because there are two available values for case but only one available value for gender and number. When there are two values for gender or number, we see the concord relationship pull apart further.

### 3.3 Analysis Summary

In this section, I proposed a novel analysis of the concord system in Icelandic. First, the highest head in the DP probes into its c-command domain to find values for gender and number. Once it acquires a value for case through whatever is responsible for case assignment, then it will possess values for all three GNC features. In the second step, the features are copied from $K$ onto dissociated $AGR$ nodes that the $K$ head c-commands in the morphology. The result is what looks like apparent agreement between the various modifiers and the head $N$.

### 4 Beyond Icelandic and Concord

#### 4.1 Beyond Icelandic

The account of concord proposed here has focused on Icelandic, so an important question to ask is how well it extends to other languages. The intuition that I aimed to capture is that concord is members of a DP expressing features of that DP. In other words, it indicates membership in an extended projection. The theory presented here is powerful and straightforward—any agreeing head in a noun’s extended projection can be accounted for under the analysis presented here.\(^8\)

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8See Norris (2011) for discussion of ‘of’-agreement/concord in Bantu and how it is expected under this analysis.
The concord system in Icelandic is rich, but it is rather simple in that the general case is for all of the elements of a DP to agree with each other. That is, all of the elements showing concord in a single DP bear the same values for gender, number, and case. To gain a clearer picture of the cross-linguistic behavior of concord, we must investigate other cases where the concord relationship is pulled apart.

One example of this comes from Estonian. Estonian is much like Icelandic in that it has a very rich system of concord in case and number (but not gender, because Estonian has no grammatical gender system). However, in DPs with numerals greater than one, the numerals appear to “assign” partitive case to the phrases they modify. We can see this in the examples below:

(16) Estonian:
   a. üks huvitav raamat
      one.NOM interesting.NOM book.NOM
      ‘one interesting book’
   b. kaks huvitava-t raamatu-t
      two.NOM interesting-PAR book-PAR
      ‘two interesting books’

In (16a), üks ‘one’, huvitav ‘interesting’ and raamat ‘book’ are all in nominative case. In (16b), kaks ‘two’ is still in nominative case, but both huvitavat and raamatu are both in partitive case. Interestingly, if the entire DP is in a different (non-nominative) case, then all of the elements must agree:

(17) kahe-le huvitava-le raamatu-le
    two-ALL interesting-ALL book-ALL
    ‘onto two interesting books’

The example in (17) is straightforward under the account sketched here, as every element bears the same value. How to incorporate situations where elements can bear different values, like in (16), is a question I must leave to future work.

4.2. Beyond Concord

Given that I have argued that concord is not the nominal domain version of A-P agreement, we would hope to find some other form of nominal agreement that more closely fits that description. I believe that the form of agreement often termed possessor agreement is a very likely candidate for A-P agreement’s correlate in the nominal domain. Possessor agreement involves possessed nouns agreeing with their possessors, and it is exemplified for Finnish in (18).

(18) Possessor agreement in Finnish
   a. (minu-n) kirja-ni
      I-GEN book-POSS.1SG
      ‘my book’ (Adapted from Karlsson, 1999)
   b. (teidän) auto-nne
      you.PL.GEN car-POSS.2PL
      ‘your (pl.) car’ (Adapted from Karlsson, 1999)

In each example above, the possessed noun bears a possessor agreement suffix indicating the person and number of the possessor. Possessor agreement looks like A-P agreement for several reasons. First of all, possessor agreement involves person features. Second, the features are only marked in one location (e.g., they do not show up on adjectives). Third, all of the features come from a separate extended projection (the possessor). Recall that, in concord, the features of a DP are expressed by the elements of that DP. In possessor agreement, the features of one DP are expressed in another DP. When we compare possessor agreement to subject-verb agreement, there is clearly more overlap than there is with concord. We can see this summarized in Table 2, where “Person” refers to the presence of person features, “Targets” refers to the number of places where the features are expressed, and “Trigger” refers to the origin of the features.
A further similarity from the two comes from the significant morphological overlap between possessor agreement and verbal agreement paradigms in some languages. For example, Mayan “set A’ agreement markers are used both for verbal agreement with ergative subjects and agreement with possessors. Based in part on this kind of overlap, Abney (1987) argues that possessors the nominal domain’s version of a subject. All of these facts suggest quite strongly that, if there is a true correlate of A-P agreement in the nominal domain, it is possessor agreement.

If A-P agreement and concord are truly distinct, then it must follow that possessor agreement and concord are distinct phenomena. As such, we would expect to find a language with both possessor agreement and concord. Generally, as Carstens (2000) notes, what we find is possessor agreement in languages without grammatical gender and concord in languages with grammatical gender. However, there is at least one example of a language with both concord and possessor agreement, and that is Finnish.

(19) Finnish: both possessor agreement and concord

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

In these examples, both the adjective and noun inflect for case, but it is only the noun that is marked for possessor agreement. It is ungrammatical to mark possessor agreement on both the adjective and the noun. An analysis that aims to equate possessor agreement and concord will have to tell a complicated story to account for the fact that they can occur in the same language but with differing distribution. An interesting problem, which I hope to address in future work, is how to formally account for the two different flows of information in languages like Finnish with both possessor agreement and concord.

5. Conclusion

In this paper, I have argued that concord is not simple A-P agreement in the nominal domain. They involve different features, concord is marked in more places than A-P agreement, and the features involved in the relationships have different origins relative to where they are marked. While they must be at least partially distinguished, the behavior of adjectives suggests that there might be some overlap. In Icelandic, adjectives inflect exactly the same way in both predicative (A-P agreement) and attributive (concord) positions: they never agree in person, and they always agree in case. It is perhaps not surprising to find that there is overlap between concord and A-P agreement, as they are both froms of agreement, and they manipulate some of the same features, i.e., (a subset of) ϕ-features.

However, even if I am right that concord and A-P agreement must be distinguished from a descriptive standpoint, whether or not we cash out concord and A-P agreement with the same theoretical machinery is a different question. A theory that is not constrained in any particular way can account for concord and A-P agreement, but such a theory might not be particularly illuminating. A theory of agreement with structural restrictions (e.g., c-command or Spec-Head) likely needs to be modified in order to account

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See also Aissen (1996) and Coon (2010) for analyses that unify the possessor and nominal domains in order to capture the generalization for Mayan.
for concord, as concord appears to be less sensitive to structure than A-P agreement. If concord and A-P agreement are distinct on some level, then perhaps modifying such theories of agreement would be a mistake. While a unified theory of agreement in all its forms is certainly appealing, developing such a theory should not be done at the expense of the explanatory power of the theory itself.

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