Concord and labeling

Vicki Carstens
Southern Illinois University
carstensv@siu.edu

1. Introduction

1.1 The labeling issue

Chomsky 2013, 2015 proposes that categories are labeled by an algorithm applying at the phase level, before transfer to the interfaces. The algorithm takes the label for a category from its head, but cannot determine the head in an [XP, YP] configuration. If Agree has applied between XP and Y, their shared feature(s) serve as label.

The core case that Chomsky considers is a clause with an external argument (EA). In its vP-internal base position, EA gives rise to the [XP, YP] configuration (see (1)a). Raising of EA to Spec, TP allows vP to be labeled by its head v, because the low copy is invisible to the algorithm (see (1)b). TP is labeled ϕP by shared features of EA and subject agreement on T (see (1)c).

(1) a. $[_{\alpha}\ [_{DP}$ the girl$]\ [_{vP}$ v $[_{VP}$ feed $[_{DP}$ the dog$]]$ — α cannot be labeled
b. $[_{vP}$ <the girl> $[_{vP}$ v $[_{VP}$ feed $[_{DP}$ the dog$]]$ — α labeled vP based on its head v
c. $[_{\phi}\ [_{DP}$ the girl$]^{\phi}$ will$^{\phi}\ [_{vP}$ <the girl> [feed the dog$]]]$ — TP can be labeled ϕP

Phi-features thus play a pivotal role in labeling, under Chomsky's proposals. Assuming this is correct, similar effects should be discernible in any syntactic domain where comparable configurations arise, including extended nominal projections in the sense of Grimshaw 1991/2005, henceforth DPs. Possessors and, for nouns that have them, external arguments[1] have been argued to originate in projections of n, a nominal counterpart to v (for possessors this projection is sometimes labeled Poss; for expository convenience I treat the cases alike):

(2) a. $[_{DP}$ D $[_{NumP}$ Num $[_{nP}$ the enemy $[_{n'}$ n $[_{NP}$ attack on the city$]]]]]$
b. $[_{DP}$ D $[_{NumP}$ Num $[_{nP}$ Mary $[_{n''}$ n $[_{NP}$ book$]]]]]$

[1] On this issue see brief remarks and citations in section 1.3.

A special factor with respect to labeling inside DPs is that unlike v/V, n/N of languages with grammatical gender have intrinsic phi-features. It stands to reason that these features are relevant to labeling possibilities, and might impact them.[2]

My paper claims that this is indeed the case. In particular, possessor and EA "subjects" within DPs are able to surface in low, nP-internal positions if they bear gender-number (henceforth g-n) concord (see the Chichewa (3)).

(3) a. chi-tunzi ch-abwino **ch-a** **Lucy** [Chichewa]
7-picture 7-nice 7of Lucy [Carstens 1997: 372, 374]
'Lucy's nice picture' (Lucy = possessor, agent, or theme)

b. [$_{DP}$ chi-tunzi+Num+D [$_{NumP}$ <Num> [$_{nP}$ chabwino [$_{nP}$ cha Lucy <chitunzi>]]]
picture nice of (possessor or agent reading)

Lexical arguments bearing g-n concord do not value agreement in higher functional categories within DP, nor do they typically (re)Merge in higher functional categories – a state of affairs somewhat reminiscent of 'freezing' or 'halting' phenomena at the clausal level (see Rizzi 2015, Chomsky 2015, Epstein, Kitahara, and Seely 2015 among others).

In contrast, genderless Turkish, Chamorro, Hungarian, Yupik, and Tsutujil wear the need for alternative labeling on their sleeves, as it were: a possessor or external argument must value agreement on a high functional category in DP and undergo raising to its Spec (see Abney

[2] Assuming that the locus of interpretable singular/plural features is the mid-level Number head in (2) (Ritter 1991, Carstens 1991) and that interpretable person features reside in D (Postal 1969), there are generally feature match/mismatch questions connected with DP "subjects" surfacing in Spec, NumP or Spec, DP. While most of this paper focuses on gender and nP syntax, I discuss some implications for labeling [XP, YP] configurations above the nP level in section 7.

1987 among others).[3] Compare (3) to (4), where (4)b is an approximate representation for Turkish:[4]

(4) a. Ahmet ve Ali-in resm-i [Turkish]
and -GEN picture-3PL
'Ahmet and Ali's picture'

b. [$_{DP}$ Ahmet ve Ali-in D_{uPhi} [$_{NumP}$ Num [$_{nP}$ <Ahmet ve Ali> resm]]]

Raising of and agreement with the possessor DP in (4) mirrors subject agreement and subject raising at the clausal level in permitting nP to be labeled by its head n, and shared prominent features to label the category of the possessor's landing site.

1.2 Where is concord?

In addition to presenting a study of labeling inside DP, my paper contributes to an ongoing debate regarding the relationship between concord and canonical agreement processes, and relatedly, the place of concord in the grammar. One analytical trend in generative syntax has been to approach concord as a subtype of agreement, derived through shared mechanisms (see Carstens 1991, 2000, 2011, Danon 2011, Koopman 2006, Baker 2008, Toosarvandani & van Urk 2014 among others). On the other hand, there have long been suggestions to the effect that concord and agreement may be the product of different processes or relations (Chomsky 2001 fn. 6, Chung 2013, Norris 2014, Baier 2015) taking place in distinct grammatical domains. And

[3] In Turkish, *any* argument must do this, suggesting that even themes are merged as specifiers rather than complements, giving rise to the [XP, YP] configuration. I will not pursue this here.
[4] Boskovic & Sener (2014) argue that Turkish nominal expressions are NPs, not DPs, with possessors surfacing in NP-adjoined positions (they do not discuss possessor agreement). A major source of evidence for their proposal is the ability of a genitive to bind something outside the DP; significantly, left branch extraction is not available, unlike in Serbo-Croatian. I will argue in section 6 that DP is a suite of projections. A D-head bearing possessor agreement might be present, and a higher DP layer crucial to constraining binding possibilities might still be absent. For precedents, see Georgi & Longobardi 1991 on the transparency for binding purposes of Italian 'of'. I leave this aside.

while mainstream minimalism takes canonical agreement to be syntactic, Bobaljik 2008 argues that it belongs to the post-syntactic morphology, opening up the possibility that this is true of both relations.

Based on my proposal that g-n concord labels nP and bleeds the DP-internal counterparts to clause-level subject raising and subject agreement, I argue that both g-n concord and agreement are syntactic, and provide a unified analysis of them in terms of Agree.

While my primary focus is g-n concord, I will consider briefly whether Case concord plays the same role,[5] pointing out what evidence is needed for future research to make a determination.

1.3 Exclusions and disclaimers

The internal workings of DP vary along many dimensions. This paper is narrowly focused and does not attempt a comprehensive treatment of DP syntax, even for languages with gender.

I do not address systematic differences some languages exhibit between alienable and inalienable possession (see in particular den Dikken 2015).

I ignore the interesting issue of an articulated DP including some A' and some A-landing sites (Szabolsci 1983, Gavruseva 2000, Alexiadou 2001, Haegeman 2003 among others).

Perhaps most egregiously, I do not engage with a rich body of scholarship which has identified subtle and intricate properties that distinguish classes of nominals, and teased out true nominal arguments and their Cases (see Alexiadou 2001, Lopez, to appear, and Picallo 1991 among others). Researchers in this area have argued that event nominals include verbal

[5] I will not consider definiteness concord which likely has a different grammar; see Baier 2015.

and aspectual projections, and that most or all nominals lack true EAs. But Lopez, to appear, shows that Spanish process nominals that do not entail a change of state have EAs (see (5))

(5) a. El ataque de Juan a sí mismo (Lopez to appear pp. 4 and 13)
the.masc attack(masc) of Juan DOM himself
'Juan's attack on himself'

b. El miedo de Juan a las arañas
the.masc fear of Juan DOM the.fem-pl spiders
'Juan's fear of spiders'

When I refer to DP-internal EAs, the scope should be understood as limited to those nominals whose argument and Case properties allow them. In diagrams, nP can be taken as a cover term for any low functional projection below NumberP to whose head N raises and adjoins.

It also bears acknowledging that many languages do not neatly fit the two typological groupings that I propose. I am confident that consideration of these, and of anomalies and counter-examples, will provide valuable contributions to our understanding of the role of gender and concord in labeling.

1.4 Structure of the paper

Section 2 reviews a proposal in Carstens 1991 that the presence or absence of grammatical gender partitions languages not only according to morpho-syntactic features, but also according to where possessors and external arguments surface. Section 3 presents a reconceptualization of the phenomena in terms labeling. Section 4 explores a kind of freezing effect for lexical arguments bearing g-n concord. Section 5 provides the mechanics for extending Agree to concord, and section 6 explores some complex cases from Maasai, West Flemish, and Matsigenka. Section 7 provides a few remarks on possessor agreement. Section 8 takes a brief look at Case concord, and section 9 concludes.

2. A gender parameter: Carstens 1991

2.1 Concord and low "subjects"

The foundation of my argument is a set of contrasts distinguishing two patterns of DP-internal morpho-syntax. Carstens 1991 (henceforth C91) observes that Bantu, Romance, and some Afro-Asiatic languages with grammatical gender exhibit the properties that I summarize in (6):[7]

(6) Common correlates of grammatical gender
(i) DP-internal concord on items that may include determiners, nominal modifiers, pronouns, and linkers.
(ii) lexical possessors and EAs surfacing in low positions introduced by 'of'.
(iii) absence of the DP-internal subject-agreement type of inflection, henceforth *possessor agreement*.

Examples (7) and (8) show concord phenomena from some Bantu and Romance languages to be considered here. In the Swahili (7)a (adapted from C91), the head noun *mjomba* – 'uncle' controls concord on a possessive pronoun and the adjective *–fupi* – 'short' in noun class which, following Corbett 1991 and Carstens 1991, I take to be comprised of number and gender. (7)b (adapted from Carstens 1997) shows concord on a demonstrative and on 'of' in Chichewa. (8)a shows concord on determiners and adjectives in Spanish[8], and (8)b on genitive pronouns and determiners in Italian (from Georgi & Longobardi 1991:52). (9)a,b exemplify concord on adjectives and the 'linker' in Hausa, an Afro-Asiatic language of the Chaddic sub-family (examples from Tuller 1986:36). (9)c,d are Hebrew, from Ritter 1992: 40-41).

(7) *Bantu*

a. m-jomba *w*-angu *m*-fupi [Swahili]
1-uncle 1-my 1-short
'my short uncle'

b. chi-panda i*ch*o *ch*-a Lucy [Chichewa]
7-calabash 7.that 7-of Lucy
'that calabash of Lucy's'

[7] See Giusti 2008 for observations along very similar lines, though Giusti argues that concord-bearing pronouns raised out of nP value silent possessor agreement.

[8] http://el-mostacho.net/esta-es-la-persona-mas-blanca-del-mundo-ingles/

(8) *Romance*

a. l-*a* person-a mas blanc-a del mundo [Spanish]
the-fem.pl person.fem.s most white-f of.the.masc world.masc
'the world's whitest person'

b. *la* su-*a* lettera [Italian]
the.fem 3sgen-fem letter.fem
his/her letter'

c. *il* su-*o* libro
the.masc 3sgen-masc book.masc
'his/her book'

(9) *Afro-Asiatic*

a. karam*a*-r rigaa bak*aa* [Hausa]
small(f)-link gown(f) black(f)
'little gown which is black'

b. zane-n Aisha bak*ii* karam*ii*
cloth(masc)-link Aisha black(m) small(m)
'Aisha's little black cloth'

c. ha-yelad-ot ha-nexmad-ot [Hebrew]
the-girl-fem.pl the-nice-fem.pl
'the nice girls'

d. ha-yelad-im ha-nexmad-in
the-boy-masc.pl the-nice-masc.pl
'the nice boys'

Property (6)(ii) is exemplified in (10)- (15), which show that lexical possessors surface post-nominally and lower than adjectival modifiers in Swahili, Chichewa, Spanish, Italian, Hausa, and Hebrew. I compare their positions with those of genitive pronouns where possible, since these typically undergo cliticization or pronoun shift into Spec of a higher functional category for independent reasons (see among others Diesing & Jelinek 1995, and discussion in section 4).[10]

[10] Two points: (1) I ignore Semitic construct state nominals, which have been argued to have special syntactic complexities (Alexiadou 2001). (2) DP-internal order in Hausa is suggestive of predicate-fronting (see (i)); the relationship to labeling in DP lies outside this paper's scope.

(10) a. Gari ji-pya l**-a** **Hasan** [Swahili]
5car 5-new 5-of Hasan [Carstens 1991: 100]
'Hasan's new car'

b. gari **l-ake** ji-pya
5car 5-3Sposs 5-new
'his/her new car'

d. *gari **la Hasan** ji-pya
5car 5-of Hasan 5-new

c. ?gari ji-pya **l-ake**
5car 5-new 5-3sposs

(11) a. chi-tunzi ch-abwino **ch-a** **Lucy** [Chichewa]
7-picture 7-nice 7of Lucy [Carstens 1997: 372, 374]
'Lucy's nice picture' (Lucy = possessor, agent, or theme)

b. chi-tunzi **ch-anga** ch-abwino
7-picture 7-my 7-nice
'my nice picture'

c. * chi-tunzi ch-abwino ch-anga
7-picture 7-nice 7-my

d. * chi-tunzi ch-a Lucy ch-abwino
7-picture 7-of 7-nice

(12) a. El coche negro **de Castro** [Spanish]
the.masc car(masc) black.masc of
'Castro's black car' [www.diariovasco.com/misterio-coche-negro-castro]

b. **Su** coche negro
3Sposs car(masc) black.masc
'his black car'

(13) a. la fint-a lettera **di Gianni** a se stesso [Italian]
the.fem false-fem letter(fem) of Gianni to himself [Georgi & Longobardi 1991:52]
'Gianni's false letter to himself'

b. la **su-a** fint-a lettera a se stesso
the.fem 3Sposs-fem false-fem letter(fem) to himself
'his false letter to himself'

(14) a. gidaa **na** **Aisha** [Hausa; Tuller p. 29]
house(masc) of.masc Aisha(fem)
'Aisha's house'

(i) a. buhun haatsi na Ali b. [sack (of) millet] of Ali <NumP>
sack millet of
'Ali's sack of millet'

b. motaa **ta** **Ali**
car(fem) of.fem Ali(masc)
'Ali's car'

c. zane-n **Aisha** bakii karamii
cloth(masc)-of Aisha black(m) small(m)
'Aisha's little black cloth'

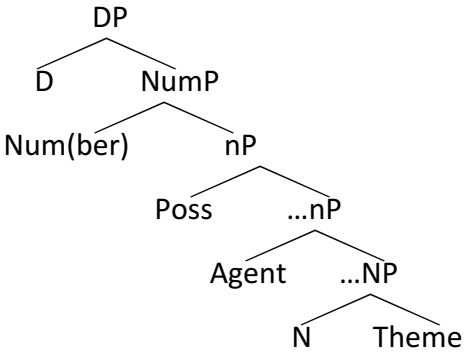
d. zane bakii karamii **ta**
cloth(masc)-of black(m) small(m) her
'her little black cloth'

(15) a. ha-axila ha-menumeset **sel Dan** et ha-uga [Hebrew; Ritter 1991:45]
the-eating the-polite of Dan of the-cake
'Dan's polite eating of the cake'

b. *ha-axilar **sel Dan** ha-menumeset et ha-uga

C91 advocates a generalization of the Internal Subject Hypothesis to all categories, as is now standard (C91:140). Updating her structures slightly, with nPs replacing her segments of NP (see Carstens 2000), Merge positions and the basic structure are as in (16). According to C91, possessors and agents bearing g-n concord surface in situ. [11]

(16) DP-internal architecture



[11] Lopez, to appear, argues that EAs in (5) merge as Specs of an Init(iation)P in the event structure (see Ramchand 2008), above nP. Throughout, my representations are simplifications.

2.2 Possessor agreement

Languages such as Turkish and Yu'pik instantiate the other end of the spectrum. They lack grammatical gender, and have no concord in number either. Since Abney 1987, it has been widely accepted that their DP-internal morpho-syntax resembles that of clauses in familiar SVO languages: all possessors and agents surface in high, prenominal positions and control agreement in person and number. Examples (17)a and (18) reproduced from Abney 1987, who cites Underhill 1976 for (17)a (see also Gavruseva 2000 and Haegeman 2003 for discussion). This agreement is henceforth referred to as *possessor agreement,* though the thematic role of its controller varies along the same lines as that of clausal subject agreement.

(17) a. Ahmet ve Ali-in resm-i [Turkish]
and -GEN picture-3PL
'Ahmet and Ali's picture'

b. ben-im yeni resm-im (Kornfilt, personal communication)
I-gen new picture-1S
'my new picture'

(18) angute-t kuiga-t [Yupik]
man-PL river-PL
'the men's river'

Following Chung 1982, Chamorro has possessor agreement that is the counterpart to subject-verb agreement, and NSO order corresponding to VSO. C91 assumes that the agent argument raises to Spec, NumP in Chamorro, followed by N-raising across it to a higher head such as D ((19) from Chung 1982:127).

(19) i-bisitana si Francisco as Teresa [Chamorro]
the-visit-AGR(3S) unm of
'Francisco's visit to Teresa'

Hungarian is also widely described as having possessor agreement (see Szabolsci 1983, 1994; (20)b-c from den Dikken 1999:139. (20)d shows that an argument introduced by 'of' can have

only a theme reading (this judgment from Eva Dekany and Huba Bartos, personal communication).

(20) a. az én-ø vendég-e-**m** *agreement with pronominal possessor* [Hungarian]
the I-nom guest-poss-1sg [Szabolsci 1983: 90]
'my guest'

b. az ő(k) kalap -ja -i -**k** *agreement with pronominal possessor*
the they hat -poss -PL-3PL
'their hats'

c. a nők kalap -ja –/***juk** *lexical possessor; no agreement*
the women hat -poss –PL-*3PL
'the women's hat'

d. (a) kep Mari-rol *no agent/possessor reading for 'of' DP*
(the) picture Mary-of
'the picture of Mary'
*'the picture of Mary's'

Den Dikken 2015 argues convincingly that Hungarian possessor inflection is not agreement but a clitic (see also den Dikken 1999, Bartos 1999, Kiss 2002 on the crucial facts). In alienable possession constructions like (20)a, this clitic is the morphology for first (or second) person. While the lexical possessor in (20)d is incompatible with 3PL inflection, see den Dikken for arguments that the *ja* morpheme in such cases is essentially an object clitic to which the person-case constraint applies, ruling out its occurrence in first and second person. I will argue in section 6 that cliticization patterns at least partially with agreement in relation to labeling problems, so I group Hungarian with possessor agreement languages despite this difference.

Tzutujil too shows possessor agreement, as Abney notes, and has no grammatical gender. Dayley 1985: 286 provides the following example.[12]

(21) Xinwijl [jun rwach [rxajab' [rk'aajool [nb'eesino]]]]
3Sabs-1S erg-found a its-strap his-shoe his-son my-neighbor
'I found a strap of my neighbor's son's shoe.'

[12] Superficially, it appears that possessors in Tzutujil raise to right-hand Specs, presenting a question in relation to antisymmetry theory (Kayne 1994) that lies outside this paper's scope.

For C91, these are all languages in which possessors must raise (see the Turkish structure (4)b, repeated below).

(4) b. [$_{DP}$ Ahmet ve Ali-in D [$_{NumP}$ <Num> [$_{nP}$ <Ahmet ve Ali> resm]]]

2.3 A gender parameter

C91 proposes that grammatical gender is a parametric choice (see my (22)), partitioning the languages of the C91 study as in (23).[13] Type 1 languages have the cluster of properties in (6). Type 2 languages exhibit the properties summarized in (24).

(22) Gender parameter: Language L does/does not have grammatical gender

(23)

Type 1 (+gender)	**Type 2 (-gender)**
Bantu	Turkish
Romance	Yu'pik
Hausa	Chamorro
Semitic	Hungarian
	Tsutujil

(24) DP morpho-syntax in Type 2 languages:
(i) concord is absent
(ii) the highest argument raises to Spec of a high DP-internal functional category
(iii) the highest argument controls DP-internal "subject agreement"

C91 analyzed g-n concord as agreement licensed under the government relation (Chomsky 1981) fed by N-to-Num raising, which she argues occurs in all Type 1 languages of the study (under the Government Transparency Corollary of Baker 1988, N-to-Num extends the government domain of for g-n concord assignment). C91 argues that the source of Case for the highest argument within DP is the mid-level functional category Num(ber).

As for why possessors and EAs surface low in Type 1 DPs, C91 assumes with Kuroda 1986, Koopman & Sportiche 1991, Fukui & Speas 1986 that languages differ as to whether Case

[13] Urdu also exhibits the robust Type 1 pattern of Bantu including low possessors and concord on 'of' in the g-n features of the head noun. See Bogel & Butt 2013 for details.

may be assigned downwards under government to an in situ subject, or whether subjects have to raise and enter into Spec, head agreement in order to obtain Case. C91 proposes that along with gender+number concord, Case from Num is uniformly assigned under government in Type 1 languages, and realized in an 'of' type morpheme. As a result, the highest argument within the extended nominal projection in Type 1 languages does not need to raise to the Spec NumP landing site that its counterparts occupy in Type 2 languages, in C91's view.

(25) Type 1: •Concord and Case assigned under government
•The highest argument is licensed in situ

Type 2: •Absent concord, Case for the highest argument relies on Spec, head agreement in Spec, NumP

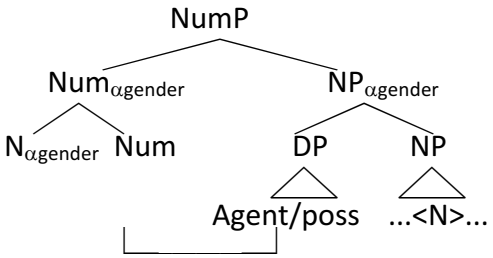
2.4 Concord and Case transparency in C91

A puzzle arises under this analysis: Why, exactly, should the presence of grammatical gender correlate with downwards Case licensing, and hence with low subjects?

In answer to this question, C91 proposes that when N raises and adjoins to Num, N's intrinsic feature of grammatical gender is inherited by the complex [N+Num]. This induces transparency of Num's complement to government, because gender is an "identity feature".[14] The structural Case-licenser Num, the low subject, and the projections surrounding it become "non-distinct" in some sense, due to sharing phi-features, so there is no barrier for Case-assignment. Economy does much of the rest of the work by constraining the raising of lexical subjects to Spec, NumP. In Type 2 languages they A-move (and agree) to get Case; in Type 1 languages they need not, so all else equal, they cannot. I illustrate in (26).

(26) C91: Num's complement NP is transparent to Num for government and Case assignment, after incorporation of N contributes to Num the "identity" feature of gender that NP also bears.

[14] C91 proposes an "identity feature sharing" requirement as an amendment to the Government Transparency Corollary of Baker 1988.



Case assigned under government

3. Labeling by concord

C91's notion of identity feature-sharing causing non-distinctness and transparency for Case-assignment lacks any obvious relation to Minimalist assumptions or independent theoretical motivation. The pattern of facts makes a great deal more sense in the context of a labeling theory of movement and agreement, however. In this section I accordingly sketch out an approach interpreting C91's proposals in terms of labeling through concord.

Let us suppose, following Chomsky (2013, 2015) that labels are assigned by an algorithm. Recall from section 1.1 that when a configuration [XP, YP] is encountered, labeling is thwarted by ambiguity over the identity of the head. One of two things must then happen for labeling to become possible: (i) XP or YP must raise,[15] or (ii) a shared feature must be available to function as the label (See (27), based on Chomsky 2013:44; EA = external argument).[16]

(27) a. [$_{\alpha}$ XP YP] impossible labeling configuration, as in [EA [v* [V ...]]]

b. [$_{YP}$ <XP> YP] XP raises. α can be labeled YP, as in [$_{vP}$ <EA> [v [V ...]]] *or*

c. [$_{\phi}$ XP$^{\phi}$ YP$^{\phi}$] XP and YP share prominent features. Can be labeled ϕP, as when T agrees with a subject in Spec, TP: [$_{\phi}$ SU$^{\phi}$ T'$^{\phi}$]

[15] Chomsky 2015 proposes that raising the complement to Y also allows labeling to proceed, a possibility I abstract away from in discussion here as it does not arise in the data.

[16] Chomsky 2015 argues that there is actually no node α in (27)a, thus no YP exists in (27)b or ϕP in (27)c, or by extension the comparable nodes in the Swahili and Hausa examples in (28) and (29). I take no position on this, but employ these notations for expository convenience.

It is a safe assumption that *n* has the intrinsic gender feature of the associated head noun, whether by inheriting it upon head-movement and morphological merger of N, or perhaps because *n* is the gender feature's source; see Kihm 2005, Lecarme 2002, Kramer 2015 for proposals. This latter view has been proposed with respect to the nominalizer *n,* as opposed to the *n* or *Poss* head that introduces possessors; moreover, proposals vary as to the precise Merge positions of external arguments. For maximum applicability across cases, I rely on N-raising to provide nominal gender to higher heads.[17] We will see in section 7 that this assumption plays an important role in explaining certain kinds of cross-linguistic variation.

Overt gender/noun class morphology on 'of' in Bantu languages and in Hausa shows clearly that arguments within the extended nominal projections in these languages obtain the concordial gender feature (see (10), (11), and (14)). Leaving aside for the moment the mechanics of concord, I illustrate its effects for a Swahili possessor in (28)b-c, leading to successful labeling in (28)d. The same for the Hausa masculine feature of *gidaa* – 'house' in (29) (Swahili N-raising and Hausa predicate raising derive surface word orders; on the latter see note 9). The proposal for labeling is summarized in (30).

(28) a. ki-siwa ch-a m-jomba
7-island 7-of 1-uncle
'uncle's island'

b. *pre-concord*: [[of uncle] n_7 [$island_7$]] labelling impossible

c. *post-concord*: [[$_7$ of uncle] n_7 [$island_7$]] in situ subject acquires g-n concord (realized on 'of')

d. *post-labelling via 'shared prominent feature':* [$_{7P}$ [$_7$ of uncle] n_7 [$island_7$]]

[17] As mentioned in note 11, Lopez, to appear, argues that if a nominalization permits an external argument (see (5)a,b) the EA merges as Spec of an Init(iation)P. I assume with Lopez that the noun root + n head-move and adjoin to Init giving it the intrinsic gender feature, so my account predicts that labeling by concord will succeed in InitP.

(29) a. gidaa **n**a Aisha
house(masc) of.masc Aisha(fem)
'Aisha's house'

b. *pre-concord:* [[of Aisha] n_{masc} [$house_{masc}$]]

c. *post-concord:* [[$_{masc}$ of Aisha] n_{masc} [$house_{masc}$]]

d. *post-labelling via 'shared prominent feature':* [$_{masc}$ [$_{masc}$ of Aisha] n_{masc} [$house_{masc}$]]

(30) **Labelling by concord**: In the configuration [XP, YP], shared g-n concordial features may serve as label.

Section 5 presents an Agree-based mechanics for concord, and an explanation for why 'of' can and must bear concord not with its complement DP but with the higher g-n features.

I assume that in Romance and Semitic languages, counterparts to 'of' inflect for concord abstractly, and this suffices to permit labeling. Even in highly inflected Bantu languages, there are particular lexical items which do not overtly agree including certain numerals and adjectives, as a matter of lexical idiosyncrasy. The invariance of Romance 'of' is by hypothesis along the same lines.

4. Concord bleeds possessor agreement

4.1 A missing pattern

In C91 I claimed that while neither the Type 1 nor the Type 2 pattern is unusual within DPs, languages are absent in which the two patterns overlap as shown schematically in (31). Taking possessor agreement to be a Spec, head relation and concord to be agreement under government, C91 expresses this with the descriptive generalization in (32) (where extended Noun Phrase = DP).[18]

[18] Giusti 2008 claims that agreement and concord co-occur, based on the fact that concord-bearing genitive pronouns raise in Romanian. I propose in section 4.2 that this raising is due to special movement requirements for pronouns, and does not involve phi-Agree. Norris 2014 points out that if concord and agreement are distinct phenomena in different parts of the grammar as he claims, they would be expected to co-occur freely. He presents two languages in

(31) *__my__-*Masc.PL sons*-__1S__

(32) Agreement-Mixing Prohibition: [Spec, head] agreement and government-based agreement may not co-occur within the same extended Noun Phrase.

The facts of additional languages may prove these generalizations to be too strong, but I propose that they reflect cross-linguistic tendencies and are therefore of theoretical significance. Section 6 considers some complex cases including bi-directionally agreeing possessive morphemes and possessors doubled by bi-directionally agreeing pronouns, and shows that on close examination they are consistent with (31) and (32).

At first blush, the Agreement Mixing Prohibition and the low position of possessors and agents in Type 1 languages are together reminiscent of "freezing" effects (Rizzi 2007, 2015 among many others), only perhaps without movement ever having occurred. But genitive pronouns provide important evidence that concord-bearing arguments in Type 1 languages are not systematically frozen.[19] As we have noted, genitive pronouns inflect for g-n concord and surface in higher positions than lexical arguments (see (11) and (13), repeated below).

(11) a. chi-tunzi ch-abwino **ch-a** **Lucy** [Chichewa]
7-picture 7-nice 7of Lucy
'Lucy's nice picture'

b. chi-tunzi **ch-anga** ch-abwino
7-picture 7-my 7-nice
'my nice picture'

c. * chi-tunzi ch-abwino **ch-anga**
7-picture 7-nice 7-my

d. * chi-tunzi **ch-a Lucy** ch-abwino
7-picture 7-of 7-nice

---

which possessor agreement and Case concord appear to co-occur, arguing that they support a non-syntactic treatment of concord phenomena. I discuss these in section 7.

[19] As noted in Carstens 1991, Giusti 2008, the relative ordering of two 'of'Ps in Bantu and Romance languages is usually flexible, providing a second argument that concord bearers are not frozen. I assume the flexibility reflects the option of 'of'Ps right-adjoining to nP, and focus on their failure to surface higher than adjectives.

(13) a. la fint-a lettera **di Gianni** a se stesso [Italian]
the.fem false-fem letter(fem) of Gianni to himself [Georgi & Longobardi 1991:52]
'Gianni's false letter to himself'

b. la **su-a** fint-a lettera a se stesso
the.fem 3Sposs-fem false-fem letter(fem) to himself
'his false letter to himself'

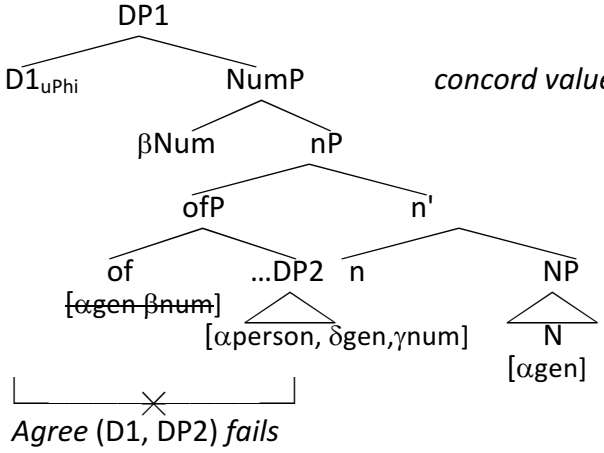
With respect to the nature of pronoun movement and its landing site(s), it is relevant to note that while genitive pronouns in some of the languages may be clitics, this is clearly not true of them all. A Chichewa genitive pronoun can stand alone ((33) from Carstens 1997:395).

(33) Ndi-ma-konda ch-anga [e]
1ssa-asp-like 7-my
*'I like my' (e.g. picture)

I conclude that XP movement is in principle available for expressions bearing g-n concord, though limited for ofPs; more on this below. The pattern described in (31) and (32) reduces entirely to a prohibition banning overlap of possessor agreement and g-n concord.

There are a couple of reasons why the Agreement Mixing Prohibition might hold. Assuming bottom-to-top derivations, nP-internal subjects will acquire g-n concord on 'of' before D is merged (a detailed mechanics of concord is presented in section 5). Should uPhi on D probe for values, 'of's valued uPhi might count as the closest potential goal (be it licit or defective), intervening to block an Agree relation with the possessor or EA:

(34)



concord values 'of's uPhi before D1 is merged

Section 5.2 will argue that there is an even stronger reason for possessor agreement with the DP introduced by 'of' to fail: the complement to 'of' is actually a null PP, whose head induces phasal spell-out (Toosarvandani & van Urk 2014); something comparable is true in pronouns. Thus independently of the concordial g-n features on 'of' in (34), a relationship between D1 and DP2 could not be established.

4.2 Labeling, Agreement Mixing, and genitive pronouns

As to how labeling of α can succeed in the [$_{\alpha}$ XP, YP] configuration where XP is a raised pronoun with concordial features, the derivational logic of (34) is relevant to them too, since concord on genitive pronouns is in many languages obligatory. As a reflection of syntax external to the pronoun, concord should be added above the intrinsic phi-features that are the pronoun's core. I offer the speculation that the shared features labeling α = the landing site of a raised pronoun are not phi-features but something pronoun-specific (see Diesing & Jelinek 1995 for a proposal that pronouns must always raise out of the domain of existential closure). For concreteness I give the label Pron^0 to a head in the DPs middle field to whose Spec the pronoun (PRON) raises (see (35)); some special features of pronouns, perhaps related to presupposition, deixis, or specificity, are taken as the label. PronP is analogous to CliticP is some analyses of clitic raising.

(35) a. [$_{DP}$ [D [$_{PronP}$ [Pron^0 [$_{nP}$ PRON n ...]]] → [$_{DP}$ [D [$_{PronP}$ PRON Pron^0 [$_{nP}$ <Pron> n ...]]]

See section 5 on why uPhi on 'of' or on a pronoun comes to bear agreement with the head noun**.**

4.3 Why lexical arguments surface low

I have ruled out possessor agreement with arguments bearing concord, and shown that genitive pronouns can nonetheless raise. I turn now to the question of why 'of'P arguments

appear to be unable to raise like pronouns do, arguing that a number of disparate factors are involved.

One factor contributing to the low position of subjects of g-n concord languages is the simple lack of pressure for these arguments to raise. In contrast, raising is required for convergence within the DPs of Type 2 languages, and for pronouns in both language types. We can look to this as a partial explanation for the contrast.

Another potential factor is the prohibition in (36), from Carstens & Diercks 2013: 187 (see also C91's Recycling Prohibition, and Wasike 2007 for a similar idea). (36) prevents arguments bearing g-n concord from ever serving as goals in Agree relations and thereby any movements such relations might feed.

(36) *No Agree with agreement:* only iPhi can value uPhi

I will mention two sources of motivation for (36). First, Carstens 2011, 2010 argues that subject agreement does not include gender features except in Bantu and Semitic languages where N surfaces at the edge of DP; in Carstens's analysis, systematically adjoined to D.[20] In contrast, concord on D in Romance languages does not suffice to make gender accessible for valuing subject agreement features.

Second, Carstens & Diercks 2013b account for the impossibility of clefting 'how' in Luyia with the same restriction. Clefts require agreement, as shown in (37)a, where the complementizer agrees with the class 16 wh-phrase 'where', and (37)b, for the class 7 wh-phrase 'what.' In Lubukusu, 'how' bears subject agreement and cannot be clefted whether the

[20] Assuming an articulated DP, some prenominal numerals discussed in Shlonsky 2004 suggest that D with the person feature, to which N must adjoin for gender to be accessible to T in Carstens's account, is lower than Semitic numerals. I leave this aside.

cleft bears the same agreement or default Class 16 agreement. Carstens & Diercks follow Wasike 2007:361 in proposing that intrinsic (for Wasike, interpretable) phi-features are needed on the clefted expression due to (36). See Carstens & Diercks for extensive arguments that 'how' in Lubukusu is not a predicate but rather a vP-adjunct which probes the highest argument in vP. Only the status of its phi-features distinguishes it from an adjunct like 'where,' whose phi-features are intrinsic.

(37) a. A-li **waena** ni-*o* Nafula a-kha-cha
3sg-be 16where comp-16agr Nafula 3sg.sa.pres-go
'Where is it that Nafula is going?'

b. Si-a-ba **siina** ni-*syo* Nangila a-a-tekh-el-a Wafula?
7sa-pst-be 7what comp-*7agr* 3ssa-pst-cook-appl-fv Wafula
'What did Nangila cook for Wafula?'

c. *A/o-li ***a*-riena** ni-*ye/o* Nafula a-kha-kenda
3sg/16-be 3sg-how comp-3sg/16 Nafula 3sg.sa-pres-walk
'How is it that Nafula is walking?'

The ban on Agree with agreement in (36) goes some distance toward explaining the apparent freezing effects and the related Agreement Mixing Prohibition in (32).

Summing up this section, I have argued that possessors and agents in Type 1 languages are not required to move for labeling of nP, given that they have a means of inflecting for concord, which provides labeling for nP with arguments in situ. If only iPhi can value uPhi, their concord features disqualify them from serving as goals for possessor agreement. The result is a tendency for lexical arguments to surface low, through a conspiracy of factors.[21] Pronouns inflected for concord undergo shifting or cliticization movements that by hypothesis are

[21] See Chomsky 2015 and Epstein Kitahara, & Seely 2015 for arguments that "freezing" is altogether epiphenomenal.

independent of phi-Agree, and lead to labeling at their landing site that does not involve phi-features.

5. Mechanics of concord

5.1 Extending Agree

Having argued that concord satisfies the labeling algorithm and bleeds possessor agreement and possessor raising, I conclude that its domain is narrow syntax. Assuming with Chomsky (2013, 2015) that the labelling algorithm applies at the completion of each phase, concord must apply earlier or at the same time. This section develops an Agree-based approach to concord.

Most aspects of g-n concord are readily analyzed in terms of the Agree relation, providing our understanding of how Agree works is enriched in a few respects.

First, it needs to be recognized that the valued, uninterpretable feature of grammatical gender can serve as goal in iterating Agree relations (see Boskovic 2011 and Carstens 2005, 2010, 2011). This conclusion is independently motivated at the clausal level by iterating subject agreement (SA) in Bantu and Semitic languages, where SA includes gender features (see (38)a from Kinyalolo 1991:156, and (38)b from Fassi Fehri 1993:215). Recognizing gender as an "active" goal feature has therefore been proposed already in the above-cited works (see also Baker 2008 on the existence of non-Case-dependent agreement).

(38) Subject agreement that includes gender iterates:

a. Nzogu *zí*-kili *z*-á-twaga maswá
10elephant 10SA-be.still 10SA-asp-stampede 6farms
'Elephants are still stampeding over the farms.'

b. Al-bint-aani kaan-*ataa* ta-ktub-*aani* darsa-humaa.
The-girls(f)-3d be.past 3fd 3f-write-d lesson –fd (d = dual)
'The girls were writing their lesson.'

Carstens 2005, 2010, 2011 argues that because a noun's gender is uninterpretable, it makes its bearer active like uCase. But unlike uCase, nominal gender's value is not determined in the

Agree relation. Carstens 2010, 2011 relates Case "deactivation" to the fact that after a first Agree relation values uCase, any subsequent such relations could tamper with that feature value (see also Nevins 2005). No such problem arises for nominal gender.

Second, assuming that unvalued uF of X becomes uF of XP, it follows that APs may probe for g-n values ((39) from Carstens 216:7). [22]

(39) a. *AP contains no source of valuation for A's uϕ*

$[_{AP}\ A_{u\phi}\ \ldots\ ]$

b. *uϕ of A become features of AP and probe N*

$[_{NP}\ AP_{u\phi}\ [_{NP}\ N_{i\phi}]]$

Third, since multiple items within DP may adopt the same concord features, it is necessary to recognize that they do not give rise to intervention effects for each other. I state this in (40).

(40) In [uF1, uF2, iF] (where c-command is left to right), If uF1 and uF2 both obtain their values from iF, uF2 does not count as in intervener in (Agree (uF1, iF)).

We can view this as a variety of Relativized Minimality: structurally intervening expressions bearing only uPhi will be irrelevant to Agree relations requiring an iPhi goal. [23]

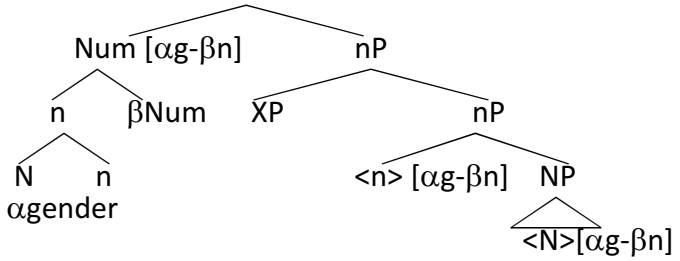
Fourth, to account for number concord on expressions lower in the tree than Num, I assume that with morphological merger of X into Y, the features of X and Y are accessible on

[22] Norris 2014 argues that adjectives taking complements fail to agree with them. For the most part, this can be explained in terms of potential labeling failures. Assume AP modifiers systematically give rise to the [$_{\alpha}$ XP, YP] configuration, where X = the A(djective), and suppose that A agrees with its complement. Labeling will not be possible if AP appears in any projection whose head has inherited g-n features of the head noun, because AP has acquired the conflicting features of A's complement. Nor could Agree share the complement's ϕ-features with Y, given (36) (even assuming there were a landing site available where the head noun's g-n features were absent). These problems perhaps lead adjectives to do selection via an intermediary null P as I will describe for 'of' in section 5.2. See further discussion there.

[23] Danon 2011 proposes that having acquired a value from F, F2 can serve as goal for F1, which would also derive the result in (40). I continue to assume instead that only iPhi can value uPhi.

the head, the tail, and any intermediate members in the chain as shown for gender and number of N and Num in (41) (see also the Government Transparency Corollary of Baker 1988). Head-movement thus extends feature accessibility (see Carstens 2010, 2011). We will see in section 7.2 and 7.3 that conversely, in the absence of full N-movement, labeling by concord is restricted to low in the tree, or may not occur at all.

(41)



It is important, however, to restrict to avoid the unintended result of making concord in person available on expressions below D, in the N-to-D Bantu languages (see Danon 2011, Carstens 2011, Baker 2008 for evidence that concord in person is available only on quantifiers that arguably c-command D). I will argue in section 6 that DP is a set of projections, of which the person head is highest. We can avoid the problem at hand by assuming that N raises not quite this high.[24]

5.2 Concord on 'of'

5.2.1 Mechanics

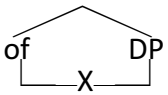
The innovations to Agree presented in section 5.1 suffice to unify concord with agreement and to account for patterns of concord, with the exception of concord on 'of'. As Carstens 2000

[24] Carstens's 2010, 2011 proposes that gender is available to all clause-level probes in Bantu and Semitic because N raises and adjoins to D, so D's person feature cannot block access as a closer potential goal. This can be compatible with my proposal above regarding the absence of person concord on items below D if the various D heads are equidistant from the outside; I won't pursue the technicalities here.

notes, were 'of's uPhi to seek a match in its c-command domain at Merge, it would be expected to obtain its value from the DP that it introduces, contrary to fact (see also Toosarvandi & van Urk 2014 for recent discussion, and (42)). The mechanics of getting g-n features on 'of' remain to be determined.

(42) No agreement possible on 'of' with the DP it introduces

a. ofP

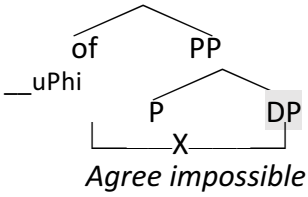


Agree

b. ki-ti ch-a/*w-a wa-toto
7-chair 7-of/*2-of 2-children
'the children's chair'

I adopt a proposal of Toosarvandani & van Urk 2014 that in languages with this property, the complement to 'of' is not directly selected by it. Instead, it is embedded in a null PP whose head induces phasal spell out, making this DP inaccessible for agreement (Toosarvandani & van Urk 2014: 9). Along the lines of Bejar & Rezac 2009, Toosarvandani & van Urk 2014, Carstens 2016, uPhi on 'of' are therefore valued by N+Num's g-n features. I illustrate in (43).

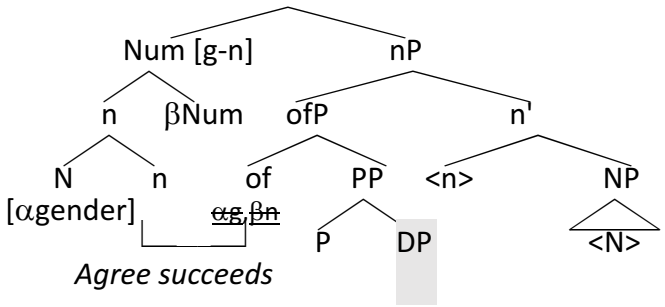
(43) a.



Agree impossible

DP introduced by 'of' is transferred by null P phase head

b.



Agree succeeds

'of''s uPhi valued by c-commanding N-n-Num

Though this null PP approach may initially appear stipulative, it seems to me that there is a deep, principled motivation involved. Labelling through concord depends crucially on the

presence and ability of something like 'of' to inflect for the concordial features αgen and βnum in the schematic (43)b. A DP cannot instead inflect for these features directly, for reasons to be laid out in section 5.2.2. Thus, were the null PP layer absent and 'of' to inflect for its complement's features,'of'P could not surface nP-internally, since its features would disagree with those of n (and Num). To eliminate the [XP,YP] problem for labeling 'of'P would need to raise but under (36), 'of'P could not value possessor agreement higher in the tree either. No licit outcome could be obtained (though see 5.2.2 for a predicted exception, instantiated in West Flemish in section 7.3).

I conclude that 'of' must avoid agreeing with its complement for labeling to succeed, and that selecting a null, phasal PP provides a buffer to preclude this. 'of' then obtains g-n concord from the c-commanding N-n-Num; in the terminology of Carstens 2016, an instance of Delayed Valuation.

A question arises regarding genitive pronouns that bear g-n concord in cases like (10)b, repeated below. Genitive pronouns are unspecified for the gender of their referents in the languages of this study, but it is widespread for them to reflect the referent's number, as shown in the contrasts between (10)b and (44)a, and (44)b versus (44)c.

(10) b. gari l-**ake** ji-pya
5car 5-3Sposs 5-new
'his/her new car'

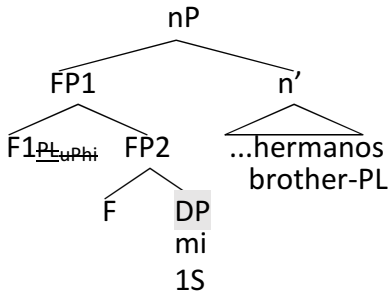
(44) a. gari l-**ao** ji-pya
5car 5-3Plposs 5-new
'their new car'

b. **mi** hermano-s
1sgen brother-pl
'my brothers'

c. **nuestro**-s hermano-s
1PL-pl brother-pl
'our brothers'

Extending the logic of the approach I advocated for 'of', I posit a phasal layer of functional structure blocking valuation of number concord by the features of the pronoun itself.

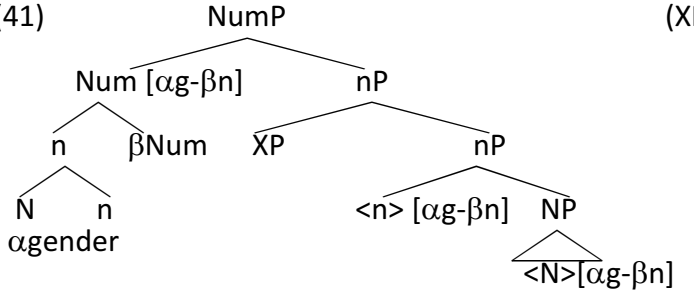
(45) g-n concord on a pronoun: F2 is a phase-head, so concord is valued "upwards"



5.2.2 'Of's role in adding uPhi to iPhi

Absent 'of', could a bare DP participate in labeling by concord? To my knowledge this does not occur: we do not find a DP in the position of XP in (41) (repeated below) exhibiting [αg-βn] concord directly. This section will speculate on the reasons why.[25]

(41) (XP = AP, a demonstrative, or 'of'P)



[25] Case-theoretic motivations for 'of' are commonly assumed, but these do not predict that it will necessarily be the concord-bearer. In languages like West Flemish where there is gender but full DPs may surface bare, they might inflect directly, but do not; see section 7.3 for discussion and examples. Consider also Giorgi & Longobardi's 1991 evidence that Italian 'of' is transparent for binding (and see the Spanish (5)a); one can imagine an alternative syntax of concord in which 'of' is ignored, and the DP it introduces bears the concord. The proposals I make in this section rule out these hypothetical but non-occurring possibilities.

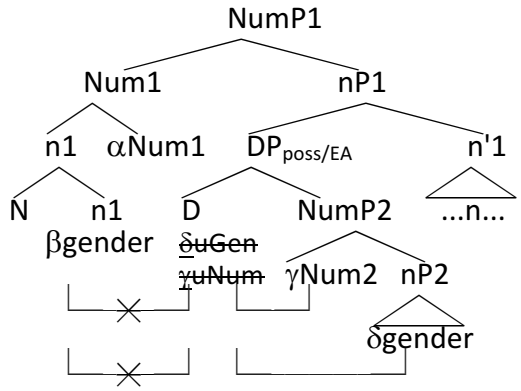
A first factor is the likely existence of prohibition on replacing intrinsic phi-features by concordial ones, or even one set of concordial values with another. This follows from (46), from Epstein, Kitahara, & Seely 2010: 134.

(46) Law of the conservation of features: in narrow syntax, features cannot be created or destroyed throughout a derivation.

A second factor is the downward bias of the derivational approach to Agree discussed in section 5.2.1. in a language with grammatical gender, uPhi of D heading a possessor or EA will necessarily acquire values for g-n concord from N/n+Num in its complement domain since that is what Merge makes available (see Bejar & Rezac 2009, Toosarvandani & van Urk 2014, Carstens 2016, building on Epstein's 1999 view of c-command). This is shown schematically in (47) where D obtains [δgender, γNum] from Num2, n2. If it were to gain values [αNum, βgender] from the c-commanding heads n/N1 and Num2 in (47), this would either violate (46) by replacing the original values or, if multiple uPhi probed for the same features, it would result in two sets of ϕ-features with conflicting values on the same head -- something I assume to be ruled out (see (47)a).

(47) a. A head H may not inflect for conflicting uPhi values.

b. D acquires [δgender, γnumber] concord by downward Agree at Merge, so D cannot inflect for [βgender, αnumber] concord with the c-commanding N+n+Num1.



I conclude that to satisfy labeling of nP, uPhi associated with a lexical argument must be borne by a morpheme like 'of'.

Suppose a Type 1 language employs no counterpart to 'of' that inflects (even abstractly) for concord. We can conjecture that a bare DP argument, unable to bear concordial features directly, would have to raise out of nP so that nP can be labeled by its head n. The argument would need to find a landing site in a category whose head does **not** have the gender feature, so that agreement and labeling will be possible in the same way as for DP arguments in Type 2 languages. In Bantu languages where N systematically raises to D, there would be no landing site for this argument to surface in, since all heads in the extended nominal projection inherit the intrinsic g-n features. But absent complete N-raising, this could be possible. I suggest in section 6 that West Flemish exhibits this pattern.[26]

5.3 Interim conclusions

I have proposed a syntactic analysis of concord in terms of the Agree relation. I summarize the components of the approach in (48). (48)(i) ensures that valuation is not unidirectional, though it looks first in the c-command domain. (ii) enables APs and other XP modifiers to Agree. (iii) is Carstens's (2010, 2011) account of multiple subject agreement in Bantu and Semitic languages based on their inclusion of grammatical gender features. It permits a single N-n-Num complex to value uPhi on multiple items. (iv) makes clear that participants in multiple Agree relations with the same goal do not encounter intervention problems. (v) ensures that number concord is available low in the tree.

[26] See also Giusti 2008 on different surface position for bare arguments vs. those introduced by a morpheme like 'of', in Romanian.

(48) **Unifying concord and agreement**

(i) valuation is first attempted downwards by uF into its c-command domain, since that is what it has access to at Merge. Any remaining uF may be valued by material added higher (Bejar & Rezac 2009, Carstens 2016, Toosarvandani & van Urk 2014).

(ii) XPs can probe (Carstens 2011, Danon 2011) because uF of X if unchecked within XP becomes uF of XP (Carstens 2016).

(iii) Deactivation accompanies Case valuation due to (46). There is no similar deactivation effect for grammatical gender, which is uninterpretable but valued (Boskovic 2011, Carstens 2010, 2011).

(iv) In [uF1, uF2, F] (where c-command is left to right), If uF1 and uF2 both obtain their values from F, uF2 does not count as in intervener in (Agree (uF1, F)).

(v) Head-movement adjoining X to Y makes features of X-Y available on heads throughout the movement chain.

6. Possessor agreement

I follow a long tradition in assuming that possessor agreement belongs to a high functional category inside DP. Most researchers equate this with D or Num and assume that a possessor or other nominal argument that values this agreement, such as the agent of an event nominal or a theme argument, if it is highest, raises to Spec, DP or Spec, NumP.

There are complications, however. The head Num is the locus of interpretable number features for the DP whose head is the possessum/event nominal. If we take it to also be the locus of possessor agreement in any language, a plural head Num could in principle probe and agree with a singular possessor or EA. Similarly, D is widely taken to be the locus of interpretable person features. If it bears uPhi agreeing with a possessor or agent, the rather surprising result could be agreement features of e.g. a second person possessor on a third person D. Given the non-semanticity of uPhi, this is conceivable but surprising. If X has an

intrinsic value for a feature F, would it probe for another uninterpretable value? Nothing quite like it happens in agreement relations within other domains. And in view of the fact that concord only surfaces on 'of' rather than in a layer directly atop lexical arguments, I have argued that double-valuation for a feature F of a single head is not an option.

There are two ways in which this problem can be resolved.

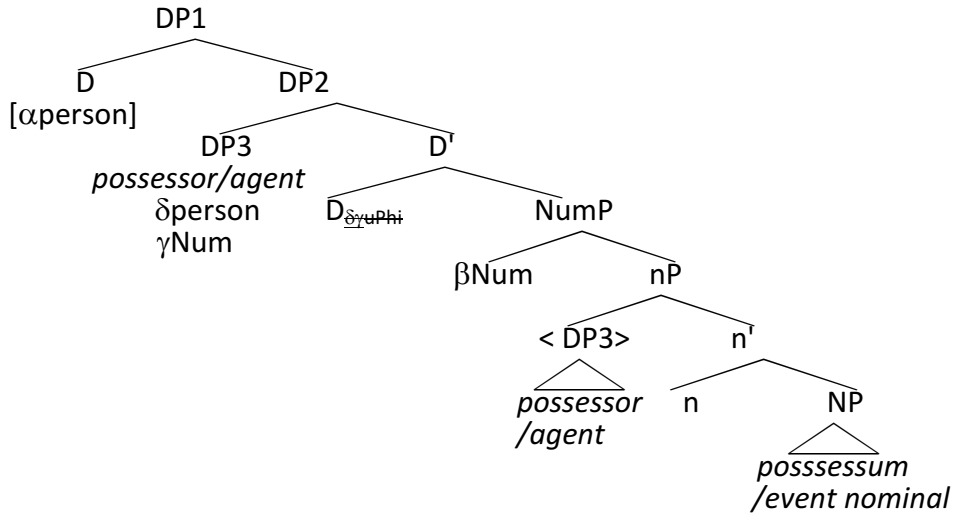
One way is to adopt the view that DP is actually a suite of projections along the lines of Rizzi's (1997) articulated CP, as advocated in Giusti 1996, Haegeman 2003 among others. One D head is the locus of interpretable person and another definiteness, etc. NumP would similarly be but one of two or more middle field projections.

Another possibility is to adopt the common view that third person D in reality has no intrinsic person features of its own, and take it to be the sole locus of possessor agreement. It is somewhat attractive to posit that its lack of iPhi would result in D probing for Phi-values, hence serving as the locus of possessor agreement..

I will not attempt to choose between these options; both of them may be true.

Summing up, possessors and other arguments controlling so-called possessor agreement raise to a high functional projection presumably in the DP layer, the head of which has unvalued phi-features. I illustrate in (49) the hypothesis that there are distinct layers associated with iPerson and uPhi. [αperson, βnumber] are intrinsic phi-features associated with the larger DP (αperson in this instance = third or øperson). [δperson, γnumber] are the intrinsic phi-features of the argument valuing possessor agreement on a D head.

(49)



A final issue connected with possessor agreement is the status of Hungarian. As noted in section 2, Den Dikken 2016 argues persuasively on a variety of grounds that Hungarian possessor "agreement" is a clitic, rather than agreement. [27] While factors other than labeling are surely at work in cliticization, I assume that it can raise an argument from a problematical [XP,YP] base configuration to adjoin to a head H. This makes the head of YP unambiguous for labeling purposes. In the landing category [$_{\alpha}$ cl+H...], labeling by H should be available. Also possible in principle is that the phi-features of the clitic can fulfill the labeling function for HP similarly to "rich" agreement on T in Italian, should H be defective (Chomsky 2015:9).

I conclude that cliticization out of an [XP, YP] configuration solves labeling problems much as XP movement does, supporting the grouping of Hungarian with Turkish, Chamorro, Tsjtujil and Yupik, despite this difference.

[27] Den Dikken offers numerous and convincing empirical arguments for the clitic approach and a theoretical argument, in Preminger's 2014 proposal that agreement is an obligatory operation. On the other hand, there are some convincing cases of agreement *not* being obligatory for a particular class of lexical items, such as French and Standard Italian past participles. Since Kayne 1989, these are generally taken to agree under displacement of the agreement trigger. See Kiss 2002, den Dikken 1999, Bartos 1999 for similar approaches to Hungarian possessor agreement, and section 8 on Finnish.

7. Complex cases

7.1 Introduction

This section briefly considers a few complex cases from Maasai, West Flemish, and Matsigenka. My purpose is to provide a sketch of how certain less transparent syntax and agreement phenomena in DP can be understood through the lense of labeling issues. As noted in the introduction, a labeling algorithm is a general property of the grammar and as such must apply inside DP as it does at the clausal level. Seeing that more difficult patterns are amenable to such treatment is an important test of the validity of the hypothesis.

7.2 Maasai

7.2.1 The facts and Brinson 2014's analysis

Maasai shows bidirectional agreement in possessive constructions: a possessive agreement morpheme (henceforth PAM) agrees in gender with the possessed, but in number with the possessor (see Storto 2003, Brinson 2014 for details). Thus PAM is feminine singular in examples (50)a,b though the possessed is feminine plural, because PAM matches only the gender of the possessed, and takes its number from the (masculine) singular possessor. In both (50)c and (50)d PAM is masculine, matching the gender of the possessed 'dog', but it is plural in (50)d, where the possessor 'friends' is plural ((50) from Brinson 2014).

(50) a. embenejio ɛ altʃani [Maasai]
leaf.F.SG PAM.F.SG tree.M.SG
'the tree's leaf'

b. imbenek ɛ altʃani
leaf.F.PL PAM.F.SG tree.M.SG
'the tree's leaves'

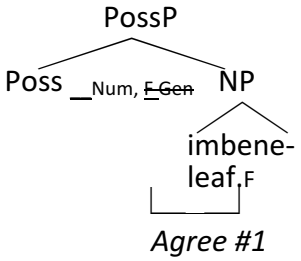
c. oldia lɛ ɔltʃere
dog.M.SG PAM.M.SG friend.M.SG
'the dog of the friend'

d. oldia lɔɔ ɔltʃarweti
dog.M.SG PAM.M.PL friend.M.PL
'the dog of the friends'

Brinson 2014 argues persuasively that Maasai PAM is Merged as the functional head Poss, taking the possessed NP as its complement (I use Brinson's category labels). PAM has uNum, uGen features which probe upon Merge, finding only the intrinsic gender feature of the possessed to agree with because the number feature of the possessed has not yet entered the derivation (see (51)b for the first derivational step of (51)a).

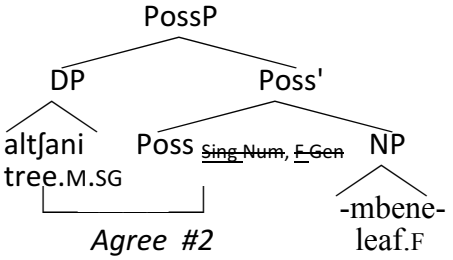
(51) a. imbenek ɛ altʃani
leaf.F.PL PAM.F.SG tree.M.SG
'the tree's leaves'

b.



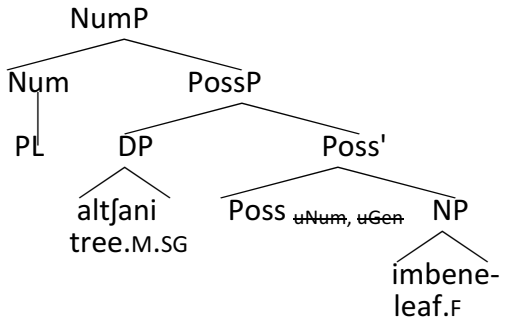
The possessor DP is merged next. At this point, Brinson argues that PAM's uNum can receive "delayed valuation" (Carstens 2016), that is, valuation deferred until an expression with appropriate features is merged higher in the same phase:

(52)



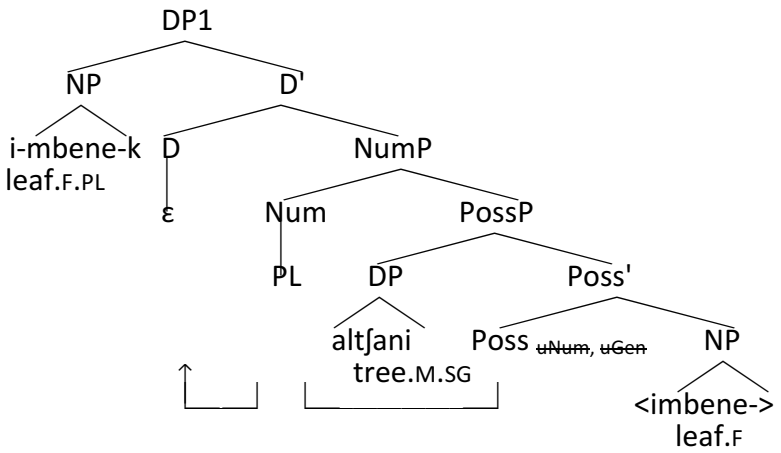
In Brinson's account, by the time the number head associated with the possessed noun is merged, the features of PAM have already been valued (see (53)).

(53)



Raising of Poss to D and of the possessed NP to Spec, DP derives the word order (see (54)).[28]

(54)



7.2.2 Maasai vs. canonical Type 1

Brinson's analysis nicely accounts for the pattern of concord in Maasai possessor constructions. One question that arises is the following: If the number feature of the possessum is available for concord processes at the bottom of the tree in a Bantu DP, why is this not the case in Maasai?

The account provides an answer: the head noun does not undergo head-movement to Num as in Bantu, Semitic, and Romance. I argued that N-to-Num is responsible for the availability of number features in concord low in the tree, under (48)(v), repeated below.

(48) (v) Head-movement adjoining X to Y makes features of [X-Y] available at the head and

[28] Brinson does not specify how the plural morphology attaches to the (raised) possessed noun. Given that Poss + Num adjoin to D in her account, I assume number inflection on the noun is agreement with Num.

tail of the movement chain.

Since Maasai N does not raise to Num, we do not expect Poss to find number features within NP to Agree with in its c-command domain.

How is Maasai possessum raising compatible with labeling and the Agreement Mixing Prohibition? In Poss' the label comes from the head Poss since the [XP, YP] configuration does not arise here. The possessum has no agreement/concord features to prevent it serving as goal of any kind. Presumably when it raises to Spec, DP (as illustrated in (54)), the gender feature it shares with D/Poss serves to label DP. Number feature agreement between the possessor and Poss labels PossP.

I conclude that despite the apparent counter-example of its bidirectionally agreeing possessive morpheme, Maasai concord is fully compatible with my proposals regarding concord and labeling.

7.3 West Flemish possessor doubling construction

West Flemish has g-n concord and a possessive construction involving doubling of the possessor by a pronoun that doubly agrees: it has the number and person features of the posssessor, and in a suffix exhibits the number and gender features of the possessed. A lexical possessor is optional, as comparison of (55)a,b with (55)c,d show (these examples from Haegeman 2013). The lexical possessor may also surface distantly from the pronoun, as in (55)d.

(55) a. Valère zen-en hoed
Valère his-msg hat
'Valere's hat'

b. Marie eur-en hoed
Marie her-msg hat
'Marie's hat'

c. zen-en hoed
his-msg hat
'his hat'

d. eur-ø veste
her-ø jacket
'her jacket'

d. Dat is die verpleegster da-n-ze gisteren [$_{DP}$ eur hus] verkoch ee-n.
that is-3sg that nurse that-pl-they yesterday her house sell-ptcp have-3pl
'That is the nurse whose house they sold yesterday.'

In a second kind of possessive construction, an invariant morpheme *sen* follows the lexical possessor, which is obligatory and cannot surface remotely.

(56) a. Valère sen hoed
Valère sen hat
'Valère's hat'

b. Marie sen hoed
Marie sen hat
'Marie's hat'

c. * Dat is die verpleegster da-n-ze gisteren [$_{DP}$ sen hus] verkoch ee-n.
that is-3sg that nurse that-pl-they yesterday sen house sell-ptcp have-3pl
[intended: That is the nurse whose house they sold yesterday.]

Haegeman 2013 proposes that lexical possessors in the pronoun doubling construction occupy Spec, DP (the position labeled Poss 2 in (57). They occupy Poss 1 = Spec, QP if they precede certain quantifiers and (optionally) bear the particle *zè*). The lexical possessor in the *sen* construction surfaces in Poss 3, Spec of the DP-internal IP. The doubling pronoun or *sen* is located in Infl of the DP:

(57) [$_{QP}$ Poss1 (-zè) Q [$_{DP}$ Poss2 D [$_{IP}$ Poss3 *sen/eur* NP]]]

I turn to the relationship between these facts and predictions of the proposals I have presented.

First, with respect to the agreeing pronoun, since it is a clitic I assume it arrives at its surface position via head-movement. As the [XP, YP] situation is not created, there is no labeling problem.

As for raising of the lexical possessor, suppose with Haegeman 2003 that it raises to its surface position. This makes sense because it is bare, so cannot have acquired concord features that would allow labeling in nP/PossP (see section 5.2 on this).

For the lexical possessor to surface in Spec DP, there must be possessor agreement there to serve as label. In the doubling construction, matching features of the pronoun provide this agreement. While the pronoun appears in Infl in (57), Haegeman 2004 situates it in D; I tentatively assume that the latter hypothesis is correct – the pronoun raises a notch to surface in the D head, and possessor agreement labels DP.[29]

Haegeman's 2004 discussion of the *sen* construction rules out the possibility that it agrees abstractly in full phi-features. Observe the contrast between (58)a and (58)b with respect to anaphor-agreement incompatibility. Only the agreeing pronoun is incompatible with a reciprocal possessor.

(58) a. da-n ze mekoar se tekst-en gelezen ee-n
that-pl they each-other sen tekst-pl read-ptcp have-3pl
'that they have read each other's texts'

b. * da-n ze mekoar under/zen/eur tekst-en gelezen ee-n
that-pl they each-other their/his/her tekst-pl read-ptcp have-3pl
[intended: that they have read each other's texts]

However, Haegeman 2004, 2013 provides evidence that there is number agreement between the prenominal possessor and *sen:* the former cannot be plural in this construction:

(59) *d'jungers sen hus
the-children *sen* house
[intended: the children's house]

I conclude that there is labeling in Spec, DP in West Flemish between a bare possessor and the agreeing pronoun, or between a possessor and a singular feature of *sen* in the middle field projection Haegeman identifies as IP in (57).

[29] Raising of the possessor to Spec, QP might involve agreement in different features; I leave this for future research.

This exploration of West Flemish has attempted to briefly show that a complex pattern of person-number agreement combining with g-n concord satisfies the DP-internal labeling requirements I have argued for. Seeing that they are consistent with the facts of a complex case like West Flemish is an important test of the validity of the hypothesis.

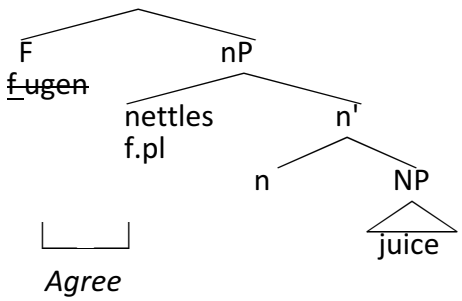
7.4 Matsigenka

Though not commonplace, there are cases of languages with grammatical gender in which the possessed inflects for the gender of the possessor, in conflict with the generalizations in (31) and (32). Matsigenka as described in Hagan & Michael 2015 is such a language ((60) adapted from Hagan & Michael 2015).

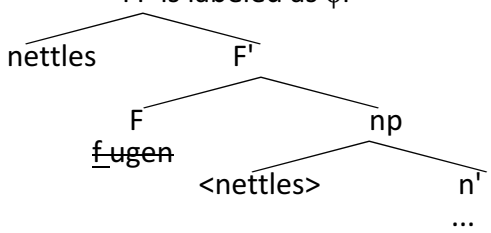
(60) a. i- patsa maeni
3m flesh bear(mP)
'bear meat'

b. o- ani tanko
3f juice nettles(fP)
'nettle juice'

I tentatively propose that there is a null functional head above the possessed, and that it inherits no gender feature from the possessed head noun because there is no head movement of n/N. This functional head agrees in gender with a bare possessor (in (61), 'nettles'), and raises it to its Spec where there is labeling by shared prominent features (surface word order not reflected below).

(61) a. 

→

b. 

These data illustrate what can come about if there is no 'of', and n/N cannot raise; as a result, there is only possessor agreement available, and this despite the presence of gender.

Matsigenka clearly merits further study with respect to the operation of concord. But even my brief look at it has the important result of demonstrating the advantage of factoring head-movement into the upwards spread of intrinsic g-n features and distinguishing this from concordial relations. A post-syntactic approach in terms of feature-spreading that lacks distinctions of this kind faces serious challenges.

8. Case concord

Before concluding, it is worth considering the question of whether Case concord has the same consequences as g-n concord with respect to labeling. The two types of morphosynactic feature-sharing have enough in common that it is reasonable to seek unitary treatment, a path pursued in Norris 2014.

Norris analyzes all concord as post-syntactic, and takes the strong position that there is no syntactic difference between a language with concord and one without. I have argued at length that this is not true of g-n concord. But is Norris's hypothesis correct for Case concord?

Norris observes that under his proposal, assuming agreement and concord are distinct operations in different grammatical domains, there should be no prohibition on concord co-occurring with possessor agreement, and suggests that Case concord and possessor agreement combine in Finnish DPs.[30] In (62), from Norris 2014: 163, inflection for innessive Case concord

[30] Norris notes that Skolt Saami may also have Case concord and possessor agreement, but Miestamo 2011 reports, "possessor is double marked...possessive suffixes on the possessee and genitive case on the possessor, but they are not simultaneously present...head and dependent marking are in complementary distribution." Thus there is possessor agreement and Case concord in the same language, but genitive marking on the possessor cannot co-occur with possessor agreement. The prohibition is intriguing.

and for the features of the first person singular possessor co-occur (possessive morphology is precluded on an adjective, or anything other than the head noun.

(62) Isso-ssa(*-ni) talo-ssa-ni
big-INNE(*-1SG) house- INNE-1SG
'in my big house'

This is potentially of interest. While we've seen that while there is not a perfect complementary distribution (given the complex cases in section 7), the canonical cases of possessor agreement proper do not seem to combine with g-n concord. if there are languages in which possessor agreement and Case concord co-occur freely, it would suggest a significant difference.

In fact though, the Finnish case is not really clear for a couple of reasons. First of all, while the possessed inflects for person and number, it does not seem that possessed and possessor have a Case concord relationship: the possessor is marked genitive, while the possessed inflects for the Case associated with the syntactic position of the containing DP (see (64)a and (64)c below).

Second, on close reading of the literature, Finnish possessor agreement appears to be very much like that of Hungarian, and not too different from West Flemish: Toivonen (2000) shows that Finnish possessor agreement must double pronouns, but cannot double full DPs ((63) and (64) from Toivonen 2000:582-583). If true agreement is obligatory as proposed in Preminger 2014, inflection for possessor features is not agreement in Finnish but rather a doubling pronominal clitic.

(63) a. Pekka näkee hänen ystävä-nsä
Pekka sees his/her friend-3PossAgr
'Pekka sees his/her friend.'

b. Pekka näkee sinun ystävä-si.
Pekka sees your friend-2sPossAgr
'Pekka sees your friend.'

c. Pekka näkee minun ystävä-ni
Pekka sees my friend-1sPossAgr
'Pekka sees my friend.'

(64) a. Pekka näkee Jukan ystävän.
Pekka sees Jukka.gen friend.acc
'Pekka sees Jukka's friend.'

b. *Pekka näkee Jukan ystävä-nsä.
Pekka sees Jukka.gen friend-3PossAgr

c. Pekka näkee pojan ystävän
Pekka sees boy.gen friend.acc
'Pekka sees the boy's friend.'

d. *Pekka näkee pojan ystävän-nsä.
Pekka sees boy.gen friend-3PossAgr

Toivonen points out several additional properties of possessor morphology that are also unexpected under a possessor agreement analysis. When it doubles a third person pronoun, the referent of possessor morphology must be human. Third person possessive morphology and pronoun doubling also interact with binding and coreference possibilities (see (65) from Toivonen 2000:585). While detailed consideration lies outside this paper's scope, all of these factors are anomalous for the view that possessor morphology is agreement.

(65) a. Pekka nakee hänen ystävä-nsä
Pekka sees his/her friend-3PossAgr
'Pekka$_i$ sees his/her$_{*i/j}$ friend.'

b. Pekka nakee ystävä-nsä
Pekka sees friend-3PossAgr
'Pekka$_i$ sees his$_{i/*j}$ friend.'

I noted in section 3 that cliticization serves to raise an argument from an [XP, YP] configuration, and that the clitic features or those of the host to which it attaches should suffice to label its host category. This does not preclude the possibility that Case concord might also have the ability to label, and combine with cliticization of possessors; recall that possessor agreement

and concord combine in West Flemish where there is no 'of' and g-n features raise only part-way up the extended nominal projection.

Summing up, the facts of Finnish do not tell us whether the labeling algorithm can in principle "read" Case concord, or the number concord component of it, as shared prominent features.

What is needed is insight into the syntax of DPs in languages where possessors and other arguments within DPs show Case concord with the head noun. Lardil as described in Richards 2007 provides such examples as (66).

(66) Ngada latha karnjin-I marun-ngan-ku maarn-ku.
I spear wallaby-acc boy-gen-instr spear-instr
'I speared the wallaby with the boy's spear.'

We need to know where in the structure a possessor like *marun-ngan-ku* 'the boy-gen-instr' surfaces, since it is the possessor of the spear, but also has instrumental Case concord with *maarn-ku* - 'spear'. If the two stand in the [XP, YP] relation and there is no evidence of phi-agreement, then it is plausible that Case concord labels.

If Case concord (especially where it is without accompanying number concord) can be shown to interact with agreement and labeling possibilities in the way that I have argued g-n features do, it will open up interesting timing issues since, as often noted, a DP's Case value dos not arrive until its source (such as v, T, or P) is merged. The findings potentially have implications regarding the module and mechanics of the Case concord relation.

There are many open questions. I leave them to future research on additional languages.

9. Conclusion

Phi-features play a pivotal role in Chomsky's 2013, 2015 labeling hypothesis, because when agreement establishes shared phi-features between two expressions in the [XP, YP] configuration, labeling can proceed.

Unlike v/V and other clause-level projections, N/n, D, and Num have intrinsic phi-features. This means that there are more phi-features available in nominal syntax than in clausal syntax: arguments within DP introduce only some of the intrinsic phi-features, whereas at the clausal level they introduce all of them. I have argued that this impacts the labeling possibilities in interesting ways.

My paper has considered aspects of the syntax of possessors and agents within DPs in a group of languages with gender-number concord and another group which lack it, and which exhibit possessor agreement. I have argued, following C91, that grammatical gender bleeds possessor agreement and possessor raising. I have proposed that this is because gender concord provides labeling for nPs with in situ subjects, and concord on these arguments is not compatible with additional Agree relations. Possessor agreement labels higher projections in the DP domain, when subjects must raise higher.

A consequence of this analysis is to locate gender-number concord firmly in the syntax.

In addition to impacting labeling, I have presented evidence that concordial features do not spread or percolate through the extended nominal projection as in Giusti 2008 and Norris 2014. The analyses of West Flemish and Matsigenka in section 7 provide strong indications that intrinsic gender features are inherited by higher heads only through head-movement. This

makes it possible for possessor raising and possessor agreement to occur in g-n languages in projections where head-movement has raised n/N.

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