

# Anti-Agreement, Wh-Agreement and Impoverishment\*

Nico Baier • Syntax Circle, February 26, 2016

## 1 Introduction

- In many languages, clausal morphology is sensitive to  $\bar{A}$ -extraction. One variety of this phenomenon is sensitivity of  $\varphi$ -agreement targets to  $\bar{A}$ -extraction of their agreement controller.<sup>1</sup>

- (1) a. s-k'tap dəzda y-na-z-ax<sup>w</sup> [Abaza]  
 1SG-book who 3SG.I-PFV-ERG.WH-take  
 'Who took my book?' (O'Herin 2002:252)
- b. a-c'la a-npə yač'<sup>w</sup>əya yə-w-ba-z [Abaza]  
 DEF-tree 3SG.INAN-at what ABS.WH-2SG.MASC-see-PST  
 'What did you see in the tree?' (O'Herin 2002:253)
- (2) a. t-zra tamghart Mohand [Tarifit Berber]  
 3SG.F-see.PFV woman Mohand  
 'The woman saw Mohand.' (Ouhalla 1993:479)
- b. man tamghart<sub>i</sub> ay yzrin —<sub>i</sub> Mohand [Tarifit Berber]  
 which woman C see.PFV.PART Mohand  
 'Which woman saw Mohand?' (Ouhalla 1993:479)
- (3) a. Quante ragazze gli ha parlato con te? [Fiorentino]  
 how.many girl.PL 3SG.M have.3SG spoken with you  
 'How many girls (it) has spoken to you?' (Brandi and Cordin 1989:124)
- b. \*Quante ragazze le hanno parlato con te? [Fiorentino]  
 how.many girl.PL 3PL.F have.3PL spoken with you  
 'How many girls (it) has spoken to you?' (Brandi and Cordin 1989:124)

- In Abaza, (1), verbs exhibit a specialized agreement morpheme to index extracted arguments.
  - ▷ This has been referred to as **wh-agreement** in the literature (Chung and Georgopoulos 1988)
- In Berber, (2), and Fiorentino, (3), extracted subjects cannot control full  $\varphi$ -agreement on the verb.
  - ▷ This has been referred to as **anti-agreement** in the literature (Ouhalla 1993).

\*I am grateful to Peter Jenks, Line Mikkelsen, Amy Rose Deal, David Pesetsky, Norvin Richards, Michelle Yuan, Kenyon Branan, Mitcho Erlewine and Jason Ostrove for feedback about aspects of the research presented here. This is a slightly revised and expanded version of the handout that I used for the original talk. Much thanks to the audience at Berkeley's Syntax Circle for their comments! All mistakes are of course my own! For the sake of clarity and consistency, I have occasionally adjusted glosses and translations in examples cited from other sources, following the Leipzig Glossing Rules wherever possible. Abbreviations used include: 1 = first person, 2 = second person, 3 = third person, AAE = anti-agreement, ABS = absolutive, DEF = definite, DEM = demonstrative, DYN = dynamic, ERG = ergative, F = feminine, FV = final vowel, I = inanimate, IND = indicative, M = masculine, PART = participle, PFV = perfective, PL = plural, PRS = present, PST = past, REL = relative, SBJ = subject, SG = singular, WH = wh-related morpheme. Plain numerals in Bantu examples indicate noun class.

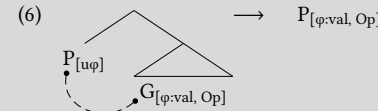
<sup>1</sup>I use theory-neutral terminology from Corbett (2006) to describe participants in an agreement relationship. The agreement *controller* is the element that determines the agreement. The agreement *target* is the element whose form is determined by agreement. In examples and glosses, **agreement controllers** are bolded and underlined, while **agreement targets** are bolded and underlined with a wavy line.

- Though they are both triggered by the extraction of an agreement controller, these effects have previously been treated as distinct:

- (4) **Wh-agreement**
- 'Normal' agreement process
  - The special exponents in (1) are the form a probe takes when it has agreed with an operator (Chung 1994, 1998; Chung and Georgopoulos 1988; Georgopoulos 1991; Watanabe 1996, a.o.)
- (5) **Anti-agreement**
- Lack of agreement
  - Results from a ban on  $\bar{A}$ -extraction of certain arguments (Diercks 2010; Henderson 2013; Ouhalla 1993; Ouali 2008, Schneider-Zioga 2007, a.o.)

- I argue that this traditional wisdom is incorrect, and that (4) and (5) are two instantiations of the same phenomenon.

- The core proposal is that these effects arise when  $\varphi$ -probe enters into an Agree relation with a Goal bearing an Op(erator)-feature. The resulting feature bundle on the probe includes both  $\varphi$ - and Op-features.



- I argue that when Op-features and  $\varphi$ -features cooccur in the same feature bundle, partial or total *impoverishment* of  $\varphi$ -features may take place.

- ▷ In a language like Abaza, impoverishment allows for the insertion of a morpheme exponing the remaining Op-feature.
- ▷ In languages like Fiorentino, impoverishment leads to the appearance of default  $\varphi$ -agreement.

- I further argue that possible  $\varphi$ -feature impoverishment rules are constrained in a predictable way.
  - ▷ The feature [PERSON] is deleted before the feature [GENDER], which in turn is always deleted before the feature [NUMBER].
  - ▷ I sketch a possible account of these constraints based on  $\varphi$ -feature geometry (Harley and Ritter 2002).

## • Roadmap:

- §2 Background Assumptions
- §3 Wh-agreement in Abaza
- §4 Extending the account to anti-agreement
- §5 Constraining impoverishment

## 2 Background Assumptions

- The analysis of *wh*-agreement and anti-agreement developed in this talk is embedded within the general framework of Distributed Morphology (DM).

- The three core claims of DM (Halle and Marantz 1993) are shown in (7)

(7) **Basic assumptions of Distributed Morphology**

- Late insertion
- Underspecification
- Syntactic hierarchical structure all the way down.

- Late insertion**, (7a), refers to the idea that in DM, morphology follows syntax.

- ▷ The syntactic derivation operates on abstract morphosyntactic feature bundles that do not contain any phonological features.
  - ▷ After the derivation is terminated, the syntactic structure undergoes morphological interpretation.
  - ▷ This process involves inserting phonological features *vocabulary items* into syntactic terminals.
  - ▷ This process is called *vocabulary insertion*.

- A vocabulary item (VI) is a pairing of morphosyntactic features with phonological features.

(8) **General structure of vocabulary items**

/phonological features/ ↔ [morphosyntactic features]

- Underspecification**, (7b), refers to the idea that the morphosyntactic feature specification of a VI need not be fully specific.

- ▷ This yields the consequence that a given VI may show up in terminals with more than one feature bundle.
  - ▷ This leads to syncretism.

- As a consequence of underspecification, more than one VI may be compatible with a given feature bundle.

- Constraints are necessary to regulate the choice of which VI is inserted in such cases:

(9) **Subset Principle**

A vocabulary item V is inserted into a terminal node N iff (i) and (ii) hold:

- The morphosyntactic features of V are a subset of the morphosyntactic features of N.
- V is the most specific vocabulary item that satisfies (i).

(10) **Specificity**

A vocabulary item  $V_1$  is more specific than a vocabulary item  $V_2$  iff  $V_1$  contains more morphosyntactic features than  $V_2$ .

- Consider how these constraints affect vocabulary insertion given at the head H in (11) and the VIs in ((12a-c):

(11)  $H_{[\alpha, \beta, \gamma]}$

(12) **Hypothetical VIs**

- $/-i/ \leftrightarrow [\beta, \delta]$
- $/-a/ \leftrightarrow [\alpha, \beta]$
- $/-u/ \leftrightarrow [\gamma]$

- ▷ The Subset Principle, (9), rules out insertion of  $/-i/$ , since its morphosyntactic feature specification is not a subset of the features on H.
- ▷ Both  $/-a/$  and  $/-u/$  are valid candidates.
- ▷ However,  $/-a/$  is more specific than  $/-u/$  by (10), and is therefore inserted in H.

- Finally, the operation **impoverishment** plays a major role in the rest of this talk.

(13) **Impoverishment (Bonet (1991); Noyer (1992, 1997); Halle and Marantz (1993))**

A morphosyntactic operation that deletes features from a syntactic terminal.

- Impoverishment takes place *before vocabulary insertion*.

- ▷ By deleting features from a feature bundle, this operation may block insertion of an otherwise appropriate VI. Consequently, a less specific marker is inserted.

(14) a. **Feature bundle**

$H_{[\alpha, \beta, \gamma]}$

b. **VIs**

$/-o/ \leftrightarrow [\alpha, \beta]$

$/-e/ \leftrightarrow [\gamma]$

c. **Impoverishment**

$[\beta] \rightarrow \emptyset / - [\gamma]$

- ▷ The impoverishment rule in (14c) deletes the feature  $[\beta]$  before vocabulary insertion.
  - ▷ Therefore,  $/-e/$  is the only eligible VI for insertion.

- In what follows, I will show that impoverishment is a key player in the derivation of *wh*-agreement and anti-agreement.

## 3 Wh-agreement in Abaza

- Abaza (ISO: abq) is a Northwest Caucasian language spoken primarily in the Caucasus Mountains in Russia. It is highly agglutinative and strongly head final.
- Verbs in Abaza display an absolutive-ergative agreement pattern. Agreement is for person, gender, and number.

- (15) a.  $\text{f}^w\text{ara}_i$   $\text{f}^w\text{-}\text{f}^w\text{-y-d}$   
 you.PL 2PL-run-PRS-DYN  
 ‘You(PL) run.’ (O’Herin 2002:64)
- b.  $\text{pro}_i$   $\text{pro}_k$   $\text{f}^w\text{-}\text{f}^w\text{-ba-t}^*$   
 3SG.F 2PL 2PL-3SG.F-see-IND.DYN  
 ‘She saw you(PL)’ (O’Herin 2002:66)
- c.  $\text{pro}_i$   $\text{pro}_k$   $\text{y}_k\text{-p-s}_i\text{-qa-d}$   
 1SG 3SG.I 3SG.I-PFV-1SG-break-DYN  
 ‘I broke it’ (O’Herin 2002:16)

- ▷ Intransitive subjects and objects control one agreement paradigm; transitive subjects control a different paradigm.
- ▷ Absolutive is distinguished from ergative by position in the verb, (15b-c), and by the form of 3rd person exponents.

	1	2F	2M	3F	3M	3I
SG	s-	b-	w-	l-	y-	a-
PL	h-	f <sup>w</sup> -	f <sup>w</sup> -	r-	r-	r-

Table 1: Ergative Agreement

	1	2F	2M	3F	3M	3I
SG	s-	b-	w-	d-	d-	y-
PL	h-	f <sup>w</sup> -	f <sup>w</sup> -	y-	y-	y-

Table 2: Absolutive Agreement

- The ergative agreement prefixes are also used to index possessors, as in (16), and the object of a postposition, (17):

## (16) Possessor agreement

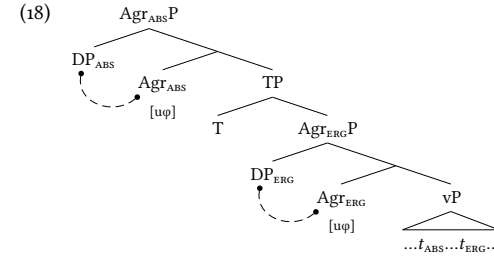
- a.  $\text{a-phas}$   $\text{l-qas'a}$   
 DEF-woman 3SG.F-man  
 ‘The woman’s husband’ (O’Herin 2002:50)
- b.  $(\text{wara})$   $\text{w-nap'a}$   
 2SG.M 2SG.M-man  
 ‘your(m) hand’ (O’Herin 2002:50)

## (17) Postposition agreement

- a.  $\text{away}$   $\text{a-m}^j\text{tax}^j$   
 that 3SG.I-after  
 ‘after that’ (O’Herin 2002:54)
- b.  $(\text{sara})$   $\text{s-pn'a}$   
 1SG 1SG-at  
 ‘by me’ (O’Herin 2002:54)

- Following O’Herin (2002), I assume that agreement prefixes spell out  $\phi$ -features hosted on dedicated Agr(eement) projections. For verbal agreement, there are two AgrPs in the clausal spine flanking TP:<sup>2</sup>

<sup>2</sup>I have drawn the structure in (18) as head initial for ease of exposition. Nothing crucial rests on the identity of the agreement hosting heads. What is crucial is that there are two separate heads in the clausal spine which host agreement.



- ▷ Each Agr head hosts a  $\phi$ -probe that triggers A-movement of the goal.
- ▷ The ergative argument values the lower  $\phi$ -probe.
- ▷ The absolutive argument values the higher  $\phi$ -probe.
- ▷ Possessor and postposition agreement involves an Agr\_ERG P in the extended projection of N° or P°.

- Each paradigm also includes a specialized morpheme that indexes extracted arguments. This is shown for absolutive *wh*-arguments in (19) and for ergative *wh*-arguments in (20):

(19) Absolutive *wh*-agreement: y-

- a. Izmir  $\text{pro}$   $\text{dzac}^w\text{aya}$   $\text{ya-r-ba-k}^w\text{a-z}$   
 Izmir 3PL who ABS.WH-3PL-see-PL-PST  
 ‘Who did they see in Izmir?’ (O’Herin 2002:252)
- b. a-č<sup>w</sup>wal  $\text{dzac}^w\text{aya}$   $\text{ya-ta-wa}$   
 DEF-sack what ABS.WH-in-PRS  
 ‘What is in the sack?’ (O’Herin 2002:252)

(20) Ergative *wh*-agreement: z-

- a.  $\text{dazda}$  s-axč<sup>a</sup>  $\text{za-yac}^j$   
 who 1SG-money ERG.WH-steal  
 ‘Who stole my money?’ (O’Herin 2002:252)
- b. a-fač<sup>a</sup>ə<sup>w</sup> a-fin<sup>j</sup>an a-pnə  $\text{dazda}$  y-na-z-ax<sup>w</sup>  
 DEF-sugar DEF-cup 3SG.I-at who 3SG.I-PFV-ERG.WH-take  
 ‘Who took the sugar out of the cup?’ (O’Herin 2002:252)

- Null relative operators also trigger *wh*-agreement. This is shown for absolutive agreement in (21a) and for ergative (possessor) agreement in (21b):

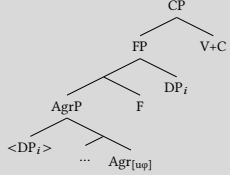
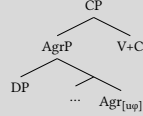
(21) *Wh*-agreement with relative operator

- a. [<sub>CP</sub>  $\text{Op}_i$   $\text{pro}$   $\text{ya-aw'a-y}^j\text{t'a-z}$  ] a-haq<sup>w</sup>-dəw<sub>i</sub>  
 [ 3SG.M ABS.WH-3SG.M-throw-PST ] DEF-stone-big  
 ‘the big rock that he threw’ (O’Herin 2002:260)
- b. [<sub>CP</sub>  $\text{Op}_i$   $\text{z-t'dz'a}$   $\text{pro}$   $\text{ya-w-x}^w\text{a}^j\text{-z}$  ] a-qac<sup>a</sup>a<sub>i</sub>  
 [ ERG.WH-house 2SG.M 3SG.I-2SG-M-buy-PST ] DEF-man  
 ‘the man whose house you bought’ (O’Herin 2002:260)

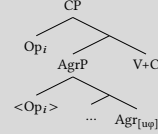
- An important observation with regards to this pattern of *wh*-agreement is that it is not tied to overt movement.

- ▷ Wh-words may stay in situ or occur immediately before the verb in Abaza.
- ▷ O’Herin (2002) argues in situ *wh*-words stay in their agreement position, while *wh*-words in immediate preverbal position undergo  $\bar{A}$ -movement to a right branching specifier directly below CP.
- ▷ On the other hand, O’Herin argues that relative operators uniformly undergo  $\bar{A}$ -movement to Spec-CP.<sup>3</sup> The structure I assume for relative clause CPs is shown in (24).

- This means that there are three possible positions for a phrase indexed by *wh*-agreement:

(22) Preverbal *wh*-word(23) In situ *wh*-word

## (24) Relative clause



- Thus, whether or not a phrase triggers *wh*-agreement cannot be determined solely by whether or not it undergoes (overt)  $\bar{A}$ -movement.

- I argue that the unifying property between the three environments in (22)-(24) is that all the agreement controllers bear an Op(erator)-feature regardless of whether they undergo  $\bar{A}$ -movement or not.

→ I argue that *wh*-agreement is simply the spell-out of an Op-feature on an Agr head.

- This analysis is supported by the fact that *wh*-agreement occurs in the same morphological slots as  $\phi$ -agreement:

	1	2F	2M	3F	3M	3I	Op
SG	s-	b-	w-	l-	y-	a-	<span style="border: 1px solid black; padding: 0 2px;">z-</span>
PL	h-	f <sup>w</sup> -	f <sup>w</sup> -	r-	r-	r-	<span style="border: 1px solid black; padding: 0 2px;">z-</span>

Table 3: Ergative Agreement

	1	2F	2M	3F	3M	3I	Op
SG	s-	b-	w-	d-	d-	y-	<span style="border: 1px solid black; padding: 0 2px;">y-</span>
PL	h-	f <sup>w</sup> -	f <sup>w</sup> -	y-	y-	y-	<span style="border: 1px solid black; padding: 0 2px;">y-</span>

Table 4: Absolutive Agreement

- Turning to the specific theoretical implementation of this idea, I start with the following two assumptions:

## (25) Op-feature uniformity

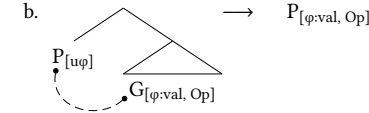
All relative operators and *wh*-words in Abaza have an Op-feature, regardless of whether they undergo  $\bar{A}$ -movement or not.

## (26) Op-feature piggybacking

- Op-features are copied from the goal to the probe along with  $\phi$ -features during the process of Agree.<sup>4</sup>

<sup>3</sup>Evidence for this comes from the fact that relative operators serving as possessors obligatorily pied-pipe the DP they are contained in, as in (21b).

<sup>4</sup>This can be accomplished in at least two ways. One analysis would take Agr heads in Abaza include both a  $\phi$ -probe and an Op-probe, and take Agree to be fallible (Preminger 2014). A second possibility would be to follow Deal (2016), argues that probes have separate satisfaction and interaction requirements. Deal’s system allows for probes to be valued for supersets of the features that they search for.



- Given (25)-(26), an Agr head that enters into an Agree relation with a *wh*-word or relative operator will always have (at least) the features in (27).<sup>5</sup>

## (27) Form of Abaza feature bundle:

[Agr<sub>ERG/ABS</sub>; PERSON:VAL, NUM:VAL, GEN:VAL; Op].

- The Abaza *wh*-agreement paradigm is highly syncretic.

- ▷ *Wh*-agreement only expresses that a given Agr head has Agreed with Op-features, regardless of other  $\phi$ -features that reside on the goal.

- Consider a possible analysis the VIs involved in spelling out Agr heads in table 5:

	Features	Vocabulary item
Full agreement	[PERSON:1, NUM:SG, Agr]	↔ /s-/
	[PERSON:2, NUM:SG, GEN:F, Agr]	↔ /s-/
	[PERSON:1, NUM:PL, Agr]	↔ /b-/
	[PERSON:3, NUM:SG, GEN:F, Agr <sub>ERG</sub> ]	↔ /l-/
	[PERSON:3, NUM:PL, Agr <sub>ERG</sub> ]	↔ /r-/
<i>Wh</i> -agreement	[Op, Agr <sub>ERG</sub> ]	↔ z-
	[Op, Agr <sub>ABS</sub> ]	↔ y-

Table 5: Abaza Agreement VIs

- Given the Subset Principle (see 9, above) and the feature bundle in (27), the VIs in the top half of the table will always be inserted over the *wh*-agreement morpheme.

- ▷ This is because they contain more features, and are therefore more specific.

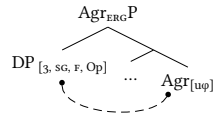
- I argue that this pattern can be derived by appealing to an impoverishment operation that deletes  $\phi$ -features from the bundle in (27). This operation is shown in (28).

(28) Abaza  $\phi$ -feature impoverishment

a. [PERSON:VAL, NUM:VAL, GEN:VAL] →  $\emptyset$  / \_ [Agr, Op]

- This rule deletes all  $\phi$ -features on an Agr head when there is an Op-feature in the same feature bundle.
- Consider how this rule derives *wh*-agreement when an ergative Agr head has Agreed with a 3rd person feminine singular operator:

<sup>5</sup>I assume that category features are part of the feature bundle of a head.

(29) a. **Agree in the Syntax**b. **Feature bundle on Agr:**

[Agr&lt;sub&gt;ERG&lt;/sub&gt;, PERSON:3, NUM:SG, GEN:F, Op]

c. **Result of impoverishment:**

[Agr&lt;sub&gt;ERG&lt;/sub&gt;, Op]

d. **Vocabulary insertion:**

[Agr&lt;sub&gt;ERG&lt;/sub&gt;, Op] ↔ /z-/

- This analysis centers the core process underlying *wh*-agreement squarely in the post-syntactic component.
  - ▷ *Wh*-agreement is fundamentally the same process as  $\varphi$ -agreement.
  - ▷ Whenever an Agr head Agrees with a goal in the syntax that carries an Op-feature, the resulting feature bundle will be subject to the impoverishment rule in (28).

## 4 Extending the account to anti-agreement

- In this section, we'll see that the logic of the account just developed for Abaza extends easily to cases of anti-agreement.
- These languages do not exhibit a unique exponent indicating the Op-agreement has taken place, but a lack of  $\varphi$ -features is still evident.
- We'll also see that  $\varphi$ -feature impoverishment can be *partial*, allowing some agreement to still surface.

### 4.1 Tarifit Berber: total anti-agreement

- Verbs in Tarifit Berber agree with their subject in person, gender, and number, as shown in (30):

(30) t-zra tamghart Mohand  
 3SG.F-see.PFV woman Mohand  
 'The woman saw Mohand.'  
 (Ouhalla 1993)

- $\bar{A}$ -extraction of a subject in Tarifit Berber requires the verb to be in a non-agreeing form, traditionally called the participle, (31a). Full agreement is impossible, (31b):

(31) a. man tamghart<sub>i</sub> ay yzr-in —<sub>i</sub> Mohand  
 which woman C see-PFV.PART Mohand  
 'Which woman saw Mohand?'  
 (Ouhalla 1993)

b. \*man tamghart<sub>i</sub> ay t-zra —<sub>i</sub> Mohand  
 which woman C 3SG.F-see.PFV Mohand

- This pattern is also found in subject relative clauses and subject focus constructions, (32):

- (32) a. tamghart<sub>i</sub> nni yzr-in —<sub>i</sub> Mohand [RC]  
 woman C see-PFV.PART Mohand  
 'the woman who saw Mohand' (Ouhalla 1993)
- b. tamghart-a<sub>i</sub> ay yzr-in —<sub>i</sub> Mohand [Focus]  
 woman-DEM C see-PFV.PART Mohand  
 'It's this woman that saw Mohand.' (Ouhalla 1993)

- Non-subject  $\bar{A}$ -extraction does not trigger suppression of subject agreement, as seen in (33):

(33) ma<sub>i</sub> ag iswa Mohand —<sub>i</sub>  
 what C drink.PFV.3SG.M Mohand  
 'What did Mohand drink?'

- Like *wh*-agreement in Abaza, this effect is specifically tied to extraction of an agreement controller, in this case the subject.
- Also like the Abaza *wh*-agreement pattern, the Tarifit pattern involves a complete leveling of  $\varphi$ -feature contrasts when the subject has been  $\bar{A}$ -extracted.

	SG	PL
1	V-γ	n-V
2M	t-V-m	t-V-d
2F	t-V-mt	t-V-d
3M	t-V	V-n
3F	n-V	V-nt

Table 6: Berber  $\varphi$ -agreement

	SG	PL
1	V-in	V-in
2M	V-in	V-in
2F	V-in	V-in
3M	V-in	V-in
3F	V-in	V-in

Table 7: Berber anti-agreement

- I argue that the Berber pattern can be derived by the same logic employed above to derive Abaza *wh*-agreement.

- I propose that the Tarifit 'participle' suffix *-in* is also an exponent of Op-agreement. The VI for the participle is much like the VIs for *wh*-agreement in Abaza:

(34) **Tarifit participle suffix**  
 [Op, Agr] ↔ /-in/

- I also propose that the same impoverishment rule that is active in Abaza is active in Tarifit.

(35) **Tarifit Berber  $\varphi$ -feature impoverishment**  
 a. [PERSON, NUMBER, GENDER] → ∅ / — [Op, Agr]

- Like in Abaza, this rule deletes *all*  $\varphi$ -features in an agreement feature bundle when that bundle also includes an Op-feature.

## 4.2 Tashlhit Berber: [number] agreement retained

- Another variety of Berber, Tashlhit, displays a similar pattern to that of Tarifit, with a slight twist: *number agreement is retained under subject extraction*:

(36) irgazn<sub>j</sub> nna ffegh-n-(in) —<sub>i</sub>  
 man.PL C<sub>REL</sub> left-PFV.PART-PL —<sub>i</sub>  
 ‘the men who left.’ (Tashlhit; Chafiq 1990:123)

- The example (36) is a relative clause with a masculine plural head noun.
  - Like Tarifit, the verb appears with the ‘participle’ suffix.
  - Unlike Tarifit, the verb in (36) must obligatorily bear the plural suffix *-in*.
- I propose that this can be derived by positing a different  $\phi$ -impoverishment rule for Tashlhit than the one that is active in Tarifit and Abaza.

(37) **Tashlhit Berber  $\phi$ -feature impoverishment**

a. [PERSON, GENDER]  $\rightarrow \emptyset$  / \_ [Op, Agr]

- The rule in (37) deletes PERSON and GENDER from an agreement feature bundle that also contains an Operator feature.

## 4.3 Lubukusu: only [person] deleted

- In the Bantu language Lubukusu, verbs take an agreement prefix indexing the person and class (=gender/number) of the subject. This is shown in

(38) o-mwa-ana a-a-tim-a  
 1-1-child 1SBJ-PST-run-FV  
 ‘The child ran.’ (Diercks 2010)

- Ä-extraction of a class 1 subject requires replacement of the normal subject marker *a-* with the morpheme *o-* (here realized as [w]):

(39) naanu o-w-a-tim-a  
 1who 1C-1SBJ.AAE-PST-run-FV  
 ‘Who ran?’ (Diercks 2010)

- Henderson (2009, 2013) and Diercks (2009, 2010) have argued that anti-agreement in Bantu suppresses the feature [PERSON], while leaving other  $\phi$ -features, [GENDER] and [NUMBER], intact.

(40) **Lubukusu: Person distinctions leveled** (Diercks 2010)

- a. Nise o-w-onak-e kumulyango kuno  
 1sg 1C-1SBJ.AAE-PST-damage-PST 3-3-door 3DEM  
 It is I who damaged the door’
- b. Niwe o-w-onak-e kumulyango kuno  
 2sg 1C-1SBJ.AAE-PST-damage-PST 3-3-door 3DEM  
 It is you(SG) who damaged the door’

(41) **Lubukusu: Cl7 subjects don’t change**

(Diercks 2010)

- a. si-si-indu sy-a-kwa  
 7-7-thing 7SBJ-PST-fall  
 ‘The thing fell.’
- b. si-si-indu si-sy-a-kwa  
 7-7-thing 7SBJ-PST-fall  
 ‘the thing which fell’

- Consider the baseline (indicative) subject agreement paradigm for Lubukusu and the corresponding anti-agreement forms found under subject extraction:

	SG	PL
1	n-	khu-
2	o-	mu-
3	a-	ba-

Table 8: Lubukusu subject markers

	SG	PL
1	o-	ba-
2	o-	ba-
3	o-	ba-

Table 9: Lubukusu anti-agreement

- The pattern in table 9 can be derived from the baseline paradigm in table 8 in the following way:
  - Following Carstens (1991) and Diercks (2010), I assume that Bantu noun classes spell out abstract gender and number: Classes 1/2 reduce to [GEN:A, NUM:SG] vs [GEN:A, NUM:PL].
  - Subject agreement is for [PERSON], [GENDER], and [NUMBER]; local persons are of gender A.

(42) **VIs for Lubukusu subject agreement**

- n-*  $\leftrightarrow$  [PERS:1, GEN:A, NUM:SG]  
*a-*  $\leftrightarrow$  [PERS:3, GEN:A, NUM:SG]  
*khu-*  $\leftrightarrow$  [PERS:1, GEN:A, NUM:PL]  
*mu-*  $\leftrightarrow$  [PERS:2, GEN:A, NUM:PL]  
*ba-*  $\leftrightarrow$  [GEN:A, NUM:PL]  
*o-*  $\leftrightarrow$  [GEN:A, NUM:SG]

- The VIs *o-* and *ba-* are underspecified for [PERSON], but specified for [GENDER] and [NUMBER].

- We again have a pattern of syncretism in Lubukusu. I propose that impoverishment is again at play in Lubukusu, as shown in (43):

(43) **Lubukusu Berber  $\phi$ -feature impoverishment**

a. [PERSON]  $\rightarrow \emptyset$  / \_ [Op, Agr]

- The rule above deletes the feature [PERSON] from agreement feature bundle that also contains an Operator feature. At the point of vocabulary insertion, then, only the following VIs can be inserted:

(44) **Possible subject markers in subject extraction contexts**

- o-*  $\rightarrow$  [GEN:A, NUM:SG]  
*ba-*  $\rightarrow$  [GEN:A, NUM:PL]

- In Lubukusu there is no morpheme that specifically spells out the Operator feature that triggers impoverishment.
- This is a significant observation in that it indicates that the difference between the Lubukusu pattern and the Abaza pattern resides in the morphology.

## 5 Constraining impoverishment

- In the previous sections, we have seen that  $\varphi$ -feature impoverishment operations vary in a constrained way. The impoverishment rules we have seen are given in (45):

(45) **Impoverishment rules (that we've seen)**

- $[\text{PERSON}] \rightarrow \emptyset / \_ [\text{Op}]$  [Lubukusu]
- $[\text{PERSON}, \text{GENDER}] \rightarrow \emptyset / \_ [\text{Op}]$  [Tashlhit]
- $[\text{PERSON}, \text{GENDER}, \text{NUMBER}] \rightarrow \emptyset / \_ [\text{Op}]$  [Abaza, Tarifit]

- The three rules in (45) are the only ones found in a cross-linguistic survey of (about) 40 languages exhibiting  $\varphi$ -agreement target sensitivity to  $\bar{A}$ -extraction (Baier 2014, 2016).
- Descriptively, then, the set of possible  $\varphi$ -impoverishment rules of the schematic form in (46) is constrained by the implicational hierarchy in (47)

(46) **Schematic impoverishment rule**

$[\subseteq \varphi] \rightarrow \emptyset / \_ [\text{Op}]$

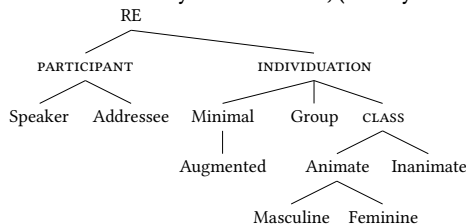
(47) **Feature Impoverishment Hierarchy:**

$\text{PERSON} \gg \text{GENDER} \gg \text{NUMBER}$

- As it stands, (47) is a stipulation. We should try to derive (47) from independently motivated principles.
- Many authors have argued that the set of  $\varphi$ -features is internally organized (Bejar 2000; Béjar and Rezac 2009; Campbell 2012; Harley and Ritter 2002; Preminger 2014).
  - $\varphi$ -features are geometrically structured.
  - Feature geometries encode natural classes of features and entailment relations between features.

- An example of such a  $\varphi$ -feature geometry is the one argued for by Harley and Ritter (2002), shown in (48).

(48) **Feature Geometry for Pronouns, (Harley and Ritter 2002)**



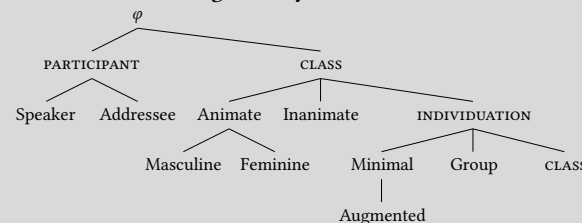
- Harley and Ritter argue that this geometry constrains the possible  $\varphi$ -feature specifications in pronouns in a given language.

- I would like to suggest that (47) is really telling us the following:

(49) The set of possible  $\varphi$ -feature impoverishment rules is constrained by dependencies among nodes in the  $\varphi$ -feature geometry.

- That is, the properties of abstract  $\varphi$ -feature geometries underly the observed Feature Impoverishment Hierarchy.
- While Harley and Ritter's (2002) original geometry won't quite get us what we want, a slight revision to their system might be able to do the trick.

(50) **Alternative feature geometry**



- Given the alternative geometry in (50), we need something like the principle in (51) to derive the Feature Impoverishment Hierarchy:

(51) Delete nodes from closer to the root node of the geometry first.

## References

- Baier, Nico. 2014. A survey of anti-agreement effects. Ms.
- Baier, Nico. 2016. Deriving Partial Anti-Agreement. Handout presented at LSA 2016.
- Bejar, Susana. 2000. Structuralmarkedness in formal features: Deriving interpretability. *Revue quebecoise de linguistique* 28.
- Béjar, Susana, and Milan Rezac. 2009. Cyclic agree. *Linguistic Inquiry* 40:35–73.
- Bonet, Eulalia. 1991. Morphology after syntax: Pronominal clitics in Romance. Doctoral Dissertation, Massachusetts Institute of Technology, Cambridge, Massachusetts.
- Brandi, Luciana, and Patrizia Cordin. 1989. Two italian dialects and the null-subject parameter. *Natural Language and Linguistic Theory* .
- Campbell, Amy. 2012. The Morphosyntax of Discontinuous Exponence. Doctoral Dissertation, Berkeley.
- Carstens, Vicki. 1991. The morphology and syntax of determiner phrases in Kiswahili. Doctoral Dissertation, University of California, Los Angeles.
- Chafiq, Mohamed. 1990. *44 lessons in the tamazight language*. Arab-Africa Press.
- Chung, Sandra. 1994. Wh-agreement and “referentiality” in Chamorro. *Linguistic Inquiry* 25:1–44.
- Chung, Sandra. 1998. *The Design of Agreement: Evidence from Chamorro*. Chicago University Press.
- Chung, Sandra, and Carol Georgopoulos. 1988. Agreement with gaps in Chamorro and Palauan. In *Agreement in Natural Languages: Approaches, Theories, and Descriptions*, ed. Michael Barlow and Charles A. Ferguson, 251–67. Cent. Study Lang. Inf.
- Corbett, Greville G. 2006. *Agreement*. Cambridge University Press.
- Deal, Amy Rose. 2016. Interaction and satisfaction in phi-agreement. Handout from UC Berkeley Syntax and Semantics Circle.
- Diercks, Michael. 2009. Subject extraction and (so-called) anti-agreement effects in lubukusu: A criterial freezing approach. In *CLS* 45.
- Diercks, Michael. 2010. Agreement with Subjects in Lubukusu. Doctoral Dissertation, Georgetown University.
- Georgopoulos, Carol. 1991. Canonical government and the Specifier Parameter: an ECP account of weak crossover. *Natural Language and Linguistic Theory* 9:1–46.
- Halle, Morris, and Alec Marantz. 1993. Distributed morphology and the pieces of inflection. In *The view from building 20*, ed. Kenneth Hale and Samuel Jay Keyser, 111–176. Cambridge, Massachusetts: MIT Press.
- Harley, Heidi, and Elizabeth Ritter. 2002. Person and number in pronouns: A feature-geometric analysis. *Language* 78:482–526.
- Henderson, Brent. 2009. Anti-agreement and [person] in bantu. In *Selected Proceedings of the 38th Annual Conference on African linguistics*, ed. Masangu Matondo, Fiona McLaughlin, and Eric Potsdam, 173–181.
- Henderson, Brent. 2013. Agreement and person in anti-agreement. *Natural Language and Linguistic Theory* 31:453–481.
- Noyer, Rolf. 1992. Features, positions and affixes in autonomous morphological structure. Doctoral Dissertation, Massachusetts Institute of Technology, Cambridge, Massachusetts.
- Noyer, Rolf. 1997. *Features, positions and affixes in autonomous morphological structure*. Garland Publishing.
- O’Herin, Brian Brian. 2002. *Case and Agreement in Abaza*. SIL International.
- Ouali, Hamid. 2008. On C-to-T Phi-Feature Transfer: the nature of Agreement and Anti- Agreement in Berber. In *Agreement restrictions*, ed. Roberta D’Alessandro, Susann Fischer, and Gunnar Hrafn Hrafnbjargarson. Walter de Gruyter.
- Ouhalla, Jamal. 1993. Subject-extraction, negation and the anti-agreement effect. *Natural Language and Linguistic Theory* 11:477–518.
- Preminger, Omer. 2014. *Agreement and its Failures*. MIT Press.
- Schneider-Zioga, Patricia. 2007. Anti-agreement, anti-locality and minimality. *Natural Language and Linguistic Theory* 25:403–446.
- Watanabe, Akira. 1996. *Case Absorption and WH-Agreement*. Kluwer Academic Publishers.