Anti-Agreement

by

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Abstract

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In this dissertation, I investigate the sensitivity of φ-agreement to features typically associated with Ā-extraction, including those related to *wh*-questioning, relativization, focus and topicalization. This phenomenon has been referred to as anti-agreement (Ouhalla 1993) or *wh*-agreement (Chung and Georgopoulos 1988; Georgopoulos 1991; Chung 1994) in the literature. While anti-agreement is commonly held to result from constraints on the Ā-movement of agreeing DPs, I argue that it reduces to an instance of *wh*-agreement, or the appearance of particular morphological forms in the presence of Ā-features. I develop a unified account of these *Ā-sensitive φ-agreement effects* in which they arise from the ability of φ- probes to copy both φ-features and Ā-features in the syntax, coupled with postsyntactic morphological operations that manipulate feature bundles containing both [φ] and [Ā].

The empirical foundation of the work is a typological survey of Ā-sensitive φ-agreement effects in 63 genetically and geographically diverse languages. This study is the largest of its kind to examine these effects, and brings to light new generalizations both about the syntax of Ā-sensitive φ-agreement effects and the behavior of φ-features in the presence of Ā-features.

I first investigate in detail the effect of Ā-features on φ-agreement in three languages: the West Caucasian language Abaza (O'Herin 2002); the Berber language Tarifit (Ouhalla 1993; El Hankari 2010); and the Northern Italian dialect Fiorentino (Brandi and Cordin 1989; Suñer 1992). I show that in all three languages, the agreement exponents that appear in the context of Ā-features are systematically underspecified. I argue that this underspecification results from the morphological operation *impoverishment*, a widely assumed morphological operation in Distributed Morphology (DM; Halle 1990, Halle and Marantz 1993) which deletes features from terminals postsyntactically prior to Vocabulary Insertion (Bonet 1991; Noyer 1992). I argue that φ-probes are able to copy both φ-features and Ā-features from their goals. In the morphological component, partial or total *impover-*

ishment may apply to the head containing both φ- and Ā-features, deleting some or all of the φ-features. Impoverishment blocks insertion of an otherwise appropriate, more highly specified agreement exponent.

I then examine the patterns of φ-exponence that emerge in the context of Ā-features. I show that leveling of φ-features in the presence of Ā-features can be total or partial and that the patterns of partial leveling are limited. Specifically, there is an implicational hierarchy that governs which contrasts can be leveled. Building on much existing work on the structure of φ-features, I adopt a version of Campbell's (2012) two dimensional φ-geometries. These rich feature sets capture both dominance relations among φ-feature categories (PERSON, GENDER and NUMBER) and entailment relations between *subfeatures* within those categories (such as ±PARTICIPANT and ±AUTHOR). I argue that impoverishment operates over these rich φ-sets. Coupled with a constraint that restricts deletion to φ-categories, this theory of impoverishment derives all and only the attested patterns of φ-leveling in the context of anti-agreement. I further show that φ-feature impoverishment and the exponence of the Ā-feature that triggers impoverishment are formally independent. That is, a language may have a reduced number of φ-feature contrasts in the context of an Ā-feature without ever morphologically realizing the Ā-feature (as is the case in Fiorentino), or the Ā-feature may be realized without any φ-impoverishment taking place (as is the case in the Atlantic language Kobiana).

I explore the distribution of Ā-sensitive φ-agreement effects. First, I present data from Tundra Nenets (Uralic, Nikolaeva 2014) and Abaza that Ā-*movement* is not required to trigger such effects. Tundra Nenets exhibits anti-agreement with true *wh*-in-situ, and Abaza exhibits anti-agreement triggered by pronouns bound by Ā-operators. Furthermore, I show that in the languages Dinka (Nilotic, van Urk 2015) and Selayarese (Austronesian, Finer 1997), although anti-agreement is linked to Ā-movement, the variation in which arguments and which Ā-dependencies trigger these effects cannot be explained structurally. In Dinka, syntactically identical Ā-dependencies differ as to whether they have a morphological effect on agreement. In Selayarese, there is no unique structural configuration that leads to anti-agreement. I show that the distribution of anti-agreement in Dinka and Selayarese can be derived through reference to the Ā-features that trigger anti-agreement (feature-based variation) and which heads are targeted for φ-feature impoverishment in the presence of an Ā-feature (probe-based variation).

I examine probe-based variation, focusing on languages in which clauses may contain multiple φ-probes. I discuss two types of cases. First, I investigate the distribution of anti-agreement in languages where there are multiple φ-probes in a clause and these φ-probes always (or sometimes) target different arguments. I show that there is no systematic asymmetry in which heads are targeted for anti-agreement in such languages. I then discuss languages in which there are multiple φ-probes in a clause and those φ-probes target the same argument. Again there, is no gap in the distribution of which heads are targeted for impoverishment in these languages.

These facts lead me to conclude that the link between anti-agreement and Ā-movement is *illusory*. Because Ā-movement is derived by the presence of certain Ā-features on the moving DP, anti-agreement will most often coincide with Ā-movement. But there are places where this correlation comes apart. All that is necessary for the emergence of anti-agreement is the presence of an Ā-feature on a DP that controls φ-agreement.

$$\left\{\begin{array}{ccc} \text{Betsy} & \text{and} & \text{Randy} \\ \text{Jeanne} & \text{and} & \text{Cliff} \\ \text{Martha} & \text{and} & \text{Bill} \end{array}\right\}$$

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Abbreviations

1	first person
2	second person
3	third person
aa	anti-agreement (form)
abl	ablative
abs	absolutive
acc	accusative
act	active
af	agent focus
antip	antipassive
aor	aorist
appl	applicative
assert	assertative mood
aux	auxiliary
cl	class (Bantu)
cntr	contrastive
compl	completive
cond	conditional
cop	copula
dat	dative
def	definite
dem	demonstrative
det	determiner
dflt	default
dim	diminuitive
dj	disjoint (Bantu)
du	dual
dyn	dynamic
ep	epenthesis
erg	ergative
f	feminine
fam	familiar
foc	focus
fut	future
fv	final vowel (Bantu, Seereer)
gen	genitive
h	human (Selayarese)
inan	inanimate
inf	infinitive
inter	interrogative
intr	intransitive
ipfv	imperfective
irr	irrealis
lk	linker
loc	locative
m	masculine
med	medial
neg	negative
nfut	non-future
nmlz	nominalizer
obj	object
pass	passive
pfv	perfective
pl	plural
poss	possessive
prob	probabilitative
prog	progressive
prs	present

PST	past
PTCL	particle
PTCP	participle
REAL	realis
REL	relative
REM	remote
SBJ	subject
SG	singular
TR	transitive
WH	wh-related morpheme

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– Nico

Chapter 1

Introduction

1.1 The main proposal

In many languages, clausal morphology is sensitive to the features typically associated with Ā-extraction. These include those related to *wh*-questioning, relativization, focus and topicalization. In particular, in many languages the form of φ-agreement is sensitive to these features. Two examples are shown in (1).

(1) a. *Tarifit (Berber)*

man tamghart$_i$	ay	**yzrin**/***t**$_i$-zra	Mohand
which woman	C	see.PTCP/3SG.F-see	Mohand

'Which woman saw Mohand?' (Ouhalla 1993:479)

b. *Fiorentino (Romance)*

Quante ragazze	**gli/*le**	**ha/*hanno**	parlato	con	te
how.many girls	3SG.M/3PL.F	have.3SG/have.3PL	spoken	with	you

'How many girls (it) has spoken to you?' (Brandi and Cordin 1989:124–125)

In both Tarifit and Fiorentino, subject-verb agreement with an extracted DP cannot appear in its expected form given that DP's φ-features. In Tarifit, verbs usually index the person, gender, and number of their subjects. In (1a), however, such agreement is impossible when the subject is a *wh*-element. Instead, the verb must appear in a special non-agreeing form, called the 'participle' in the Berber literature. Likewise, in Fiorentino, (1b), the finite verb and preverbal subject clitic cannot register person, gender, and number features (3rd person feminine plural) of the *wh*-subject. Instead, they must appear in a 3rd person singular (masculine) default form. In both languages, full subject-verb agreement is obligatory when the subject is not extracted.

The examples in (1) are paradigmatic instances of a phenomenon that has come to be known as the *anti-agreement effect* (henceforth *anti-agreement*) since Ouhalla's (1993) seminal work. Although anti-agreement is relatively well known in the generative literature, there is little consensus on what gives rise to the effect. From a theoretical perspective, the puzzle presented by anti-agreement is why φ-agreement between a head and a DP should be affected by Ā-features. That is, why does the situation in (2) affect φ-agreement on H?

(2) [... $\text{DP}_{[\varphi,\, \bar{\text{A}}]}$ ... AGR-H ...]

One prominent line of thinking in the literature holds that extraction of the DP disrupts the syntax of agreement between H and DP (or its trace). That is, some aspect of the structure in (3) renders syntactic agreement between H and DP illicit.

(3) [DP_i C [... t_i ... AGR_i-H ...]]
✗

Such analyses place the explanatory burden on the movement itself, rather than the features that lead to movement. As we will see in section 1.3, a myriad of reasons have been put forward to account for why movement should disrupt agreement, from binding theoretic accounts (Ouhalla 1993; Schneider-Zioga 1995; Wiltschko 2006) to syntactic restrictions on Ā-movement (Erlewine 2016; Diercks 2010; Richards 2001; Schneider-Zioga 2007).

In this dissertation, I argue against the idea that anti-agreement involves a disruption to the syntax of agreement and against the idea that Ā-*movement* is necessarily involved. Instead, I argue that anti-agreement is the morphological result of agreement with a DP with Ā-*features*. In other words, anti-agreement is just an instance of what has been called *wh-agreement* in the literature, a canonical example of which comes from the West Caucasian language Abaza.

(4) *Abaza (West Caucasian)*

s-k^{j}tap	**dəzda**$_i$	y-na-**z**$_i$-ax^w
1SG-book	who	3SG.INAN-PFV-ERG.WH-take

'Who took my book?' (O'Herin 2002:252)

In (4), the prefix *z-* reflects the fact that the subject of the verb is a *wh*-phrase. O'Herin (2002) argues that this prefix straightforwardly realizes the WH-feature of the *wh*-phrase. That is, the prefix *z-* is simply the form that agreement takes when the verb has agreed with a DP bearing an Ā-feature (cf. Chung 1994, 1998; Chung and Georgopoulos 1988; Georgopoulos 1991; Watanabe 1996, a.o).

The core proposal of this dissertation is that φ-probes are sensitive to whether their goals bear Ā-features. Specifically, I propose that when a φ-probe agrees with a goal that bears both an Ā-feature and φ-features, the probe copies back both φ-features and the Ā-feature. I refer to this proposal as *Ā-sensitive φ-agreement.*

(5) *Ā-sensitive φ-agreement*

$[\ \ldots\ \mathrm{H}_{[u\varphi]}\ \ldots\ \mathrm{DP}_{[\varphi,\ \bar{A}]}\ \ldots\ ]$

$\varphi+\bar{A}$

I assume that the behavior in (5) follows from the nature of the operation Agree itself. Languages vary as to how the resulting [φ+Ā] feature bundle on the head hosting the probe is treated in the morphology. Under this analysis, anti-agreement and *wh*-agreement are really two sides of the same coin; they are both morphological manifestations of φ-agreement with an Ā-element.

I show that the core morphological property of anti-agreement and *wh*-agreement is a systematic retreat to an underspecified form. I argue anti-agreement and *wh*-agreement arise when partial or total *impoverishment* of [φ] applies to the [φ+Ā] feature bundle in the morphological component, blocking insertion of an otherwise appropriate, more highly specified agreement exponent. Such a rule is shown in (6).

(6) *Impoverishment of φ-features in the context of an Ā-feature*

$[\varphi] \rightarrow \emptyset\ /\ [\_\_,\ \bar{A}]$

The morphological rule in (6) deletes φ-features from a feature bundle when that feature bundle also contains an Ā-feature. For the rule above, any Ā-feature will suffice to trigger impoverishment. However, as we will see, in some languages, anti-agreement may triggered by more specific Ā-features (such as [wh] or [foc]).

The difference between what has been deemed '*wh*-agreement' (that is, appearance of a dedicated morpheme specific to the Ā-context) and what has been deemed 'anti-agreement' (that is, appearance of a default agreement form in the Ā-context) comes down to the agreement vocabulary items a given language has available. If there is a morpheme that spells out an Ā-feature (call it [Ā]), that exponent will be inserted; this is the case in the Abaza example above. If there is no morpheme specified to spell out [Ā], a default (or partial) agreement form will be realized, or in some languages, no agreement morpheme will surface at all; this is the case in Fiorentino. In some languages, both options are available. In Abaza, for example, I argue that Ā-extracted ergative arguments control a special agreement morpheme, while Ā-extracted absolutive arguments simply trigger default agreement. In Tarifit, I argue that the participle form includes both a default agreement prefix (*y*- in example 1a) and a suffix that spells out an Ā-feature (-*n* in example 1a, above).

Languages without *wh*-agreement or anti-agreement lack impoverishment triggered by [Ā] altogether. The same sequence of operations underlies both effects—'normal' φ-agreement in the syntax via Agree, followed by impoverishment in the morphological component. Thus, the syntax of agreement remains uniform in Ā-extraction and non-Ā-extraction contexts.

The configuration in (5) is simply the familiar probe-goal architecture of Agree (Chomsky 2000, 2008). The key innovation of the theory in this dissertation with regard to Agree is that φ-probes can copy both [φ] and [Ā] features from a goal. This aspect of the theory makes certain crucial predictions. First, any DP that interacts (in the sense of Deal 2015) with a φ-probe should in principle be able to trigger anti-/*wh*-agreement affecting that probe. In other words, the only syntactic precondition for triggering anti-agreement should be (5). The structural position of the DP in question should not matter, other than how that structural position affects the ability of the DP to serve as a goal to the affected probe. Second, under the assumption that different types of Ā-dependencies involve different Ā-features, the theory here predicts that different Ā-dependencies may or may not trigger anti-agreement, even if the syntax of those dependencies is otherwise identical. Finally, because the current theory is based on the featural content of the DP targeted for agreement, rather than Ā-movement of that DP, it should in principle be possible to find DPs that trigger anti-/*wh*-agreement without undergoing Ā-movement.

These predictions are confirmed by generalizations that emerge from a crosslinguistic survey of 63 languages exhibiting φ-agreement whose form is sensitive to the presence of Ā-features on its controller. In the next section, I discuss the crosslinguistic survey and the generalizations regarding anti-agreement that it reveals. I then discuss previous accounts of anti-agreement in section 1.3 and show how these generalizations are problematic for those accounts.

1.2 A crosslinguistic survey of anti-agreement effects

The empirical foundation for the theory of anti-agreement developed in this dissertation is a crosslinguistic survey of 63 languages exhibiting φ-agreement morphology that is sensitive to the presence of Ā-features on its controller. This survey represents the entirety of languages that I have found to display such effects, and was constructed by searching the existing literature on anti-agreement, conferring with fieldworkers and language experts, and searching through grammars and other grammatical descriptions. During the construction of the survey, potential languages were identified based on genetic relatedness to languages known to exhibit anti-agreement, as well as searches based on both areal and genetic diversity. Altogether, the survey includes languages from all continents except Australia, and languages from at least 19 families.

This wide empirical breadth distinguishes the current work from existing studies of anti-agreement. While Ouhalla's (1993) original work engages with languages from several families and Phillips (1997) also conducts a small crosslinguistic survey, these are exceptions and not the rule in the anti-agreement literature.[1] Most other studies of the phenomenon have focused on a single language or on a single language family.

Because the behavior of φ-agreement in the context of Ā-dependencies is the object of study, I selected only languages which had some form of morphology that overtly covaries with the φ-features of a nominal. This definition of 'φ-agreement' is broad and includes argument-predicate agreement as well as less often considered forms of agreement in the anti-agreement literature, such as possessor agreement. Additionally, I selected only languages in which the morphology in question can cooccur at least optionally with the nominal that it indexes.

This second criterion has an important consequence with regards to which languages were included in the survey. Specifically, because the morphology in question must be able to cooccur with the nominal it indexes, some languages that have previously been considered to have anti-agreement were eliminated from the sample. Specifically, the Celtic languages Breton and Welsh were not included in the survey, because bound morphology expressing φ-features cannot cooccur with an overt DP in these languages, as shown in (7).[2]

(7) *Complementarity between overt bound φ-morphology and an overt nominal*

a. *Welsh singular DP subject*

Canai	'r	bardd
sing.COND.(3SG)	the	bard

'The bards would sing.' (Hendrick 1988:37)

b. *Welsh plural DP subject*

Canai	'r	beirrdd
sing.COND.(3SG)	the	bards

'The child sang.' (Hendrick 1988:37)

1. Ouhalla discusses anti-agreement in Berber, Turkish, Fiorentino, Welsh, and Breton. Phillips examines Turkish, Berber, Breton, Fiorentino, Yimas, Palauan, and Kinande.

2. Welsh and Breton differ in the behavior of pronominal subjects with regard to this constraint. In Breton, neither overt pronominal subjects nor DP subjects can cooccur with overt φ-inflection on the verb, as shown in (7c)–(7d). In Welsh, on the other hand, overt pronouns do trigger φ-agreement on the verb. Compare (i), below, to (7b).

(i) *Welsh 3PL pronominal subject*

Canent	nhw	bob	dydd
sing.COND.(3SG)	they	every	day

'They would sing every day.' (Hendrick 1988:38)

c. *Breton plural pronominal subject*

Bremañ	e	**labour**	/	***labouront**	int	
now	PTCL	work.PRS.3SG	/	work.PRS.3PL	they	

‘They are working now.’ (Hendrick 1988:28)

d. *Breton plural DP subject*

Bemdez	e	**lenn**	/	***lennont**	ar	vugale
every.day	PTCL	read.PRS.3SG	/	sing.PRS.3PL	the	children

‘The children read a book every day.’ (Hendrick 1988:28)

The ‘agreement’ in question is also blocked in cases of subject extraction, as shown in (8).

(8) *No overt bound φ-morphology with extracted subject*

a. *Breton subject relative*

Ar	vugale$_i$	[	a	**lenne**	/	***lennent**	—$_i$	al	levrioù]
the	children		PTCL	read.PST.3SG	/	*read.PST.3PL		the	books

‘the children who read the books’ (Ouhalla 1993:482)

b. *Welsh subject relative*

y	dynion$_i$	[	a	**welodd**	/	***gwelon**	—$_i$	fi	]
the	men		PST-3PL-AUX.2SG	see.PST.3SG	/	see.PST.3PL		me	

‘the men who saw me’ (Hendrick 1988:218–219)

Because the morphology in question cannot cooccur with an *in situ* DP subject, the sentences in (8) can be analyzed as conforming to the same constraint as the sentences in (7). Namely, *any* overt DP subject is banned from being doubled by bound φ-morphology. That is, there is a *general* constraint active in these languages, not one specific to Ā-contexts. This pattern is therefore demonstrably different than the Tarifit and Abaza examples cited above, where there is a constraint on the form of bound φ-morphology in a specific Ā-context.

For each language in the survey, I determined which instances of φ-agreement exhibited *Ā-sensitivity effects*, as defined in (9).

(9) *Ā-sensitivity effect*

An instance of φ-agreement X exhibits an **Ā-sensitivity effect** if,

a. X takes the form α for a particular set of φ-features φ$_1$ on nominal N when N does not have an Ā-feature and

b. X takes the form β for φ$_1$ on N when N does have an Ā-feature, where α≠β.

In other words, for each language I determined which instances of agreement had forms that varied with the presence or absence of an Ā-feature on the nominal that normally controls that agreement. Note that I take the definition in (9) to include cases where the form β is null. When a language had multiple instances of agreement in a single clause, it was determined if these behaved differently or uniformly in the Ā-context. I documented the behavior of each Ā-sensitivity effect along three parameters, given in (10).

(10) *Parameters of variation in Ā-sensitivity effects*

Given an instance of φ-agreement exhibiting an Ā-sensitivity effect in which the form β replaces the form α,

a. How many φ-distinctions does the paradigm including β make?

b. Is the form β used only in the Ā-context, or is it used elsewhere?

c. Which types of Ā-dependencies can trigger the appearance of β?

I discuss results relating to these parameters of variation below.

The first important result of the survey is that there is variation with regards to the number of φ-feature contrasts that are expressed in the Ā-context. All φ-feature distinctions may remain expressed, all may be leveled, or only a subset of those contrasts may be leveled. That is, when φ-feature contrasts are lost in the context of Ā-features, this loss may be *total* or *partial*. In cases of total anti-agreement, no φ-feature contrasts are expressed in the Ā-context. In cases of partial anti-agreement, only a subset of φ-feature contrasts are leveled in the context of an Ā-feature. A simple example comes from comparing two Berber languages, Kabyle, in (11), and Tashlhit, in (12).

(11) *Kabyle (Berber) anti-agreement*

a. argaz ynɣan
   man kill.PTCP
   'the man who killed…' (Drouin 1996:235)

b. irgazn ynɣan
   men kill.PTCP
   'the men who killed…' (Drouin 1996:235)

(12) *Tashlhit (Berber) partial anti-agreement*

a. tamɣart lli yulsn
   woman CREL start.again.PTCP
   'the woman who started again.' (Drouin 1996:237)

b. irgazn lli ulsnin
men CREL start.again.PTCP.PL
'the men who started again.' (Drouin 1996:237)

In both languages, subject relativization requires that the verb be in a non-agreeing 'participle' form. In Kabyle, the form of the verb does not covary with the plurality of the extracted subject. In Tashlhit, however, plurality of the extracted subject is marked on the verb in the relative clause (*yulsn* in 12a vs. *ulsnin* in 12b). Thus, the Kabyle pattern is an example of *total anti-agreement* and the Tashlhit pattern is an example of *partial anti-agreement.*

The attested patterns of φ-feature contrast neutralization in the sample are summarized in table 1.1.

	Non-Ā-Context			Ā-Context		
	Person	Gender	Number	Person	Gender	Number
Type 1	✓	(✓)	✓			
Type 2	✓	(✓)	✓			✓
Type 3	✓	✓	✓		✓	✓

Table 1.1: Patterns of syncretisms in the context of Ā-features

The left side of table 1.1 shows which φ-features are indexed in contexts where the agreement controller does not bear Ā-features; the right side of the table shows which of those features are indexed when the agreement controller does bear Ā-features.[3] In type 1 leveling, all normal agreement features are neutralized (as in Abaza and Tarifit, discussed in the next chapter). In type 2, all normal agreement features other than number are neutralized (as in Tashlhit, to be discussed in chapter 3, section 3.4.2). In type 3, only person agreement is neutralized, while gender and number agreement remain indexed (as in Lubukusu, to be discussed in chapter 3, section 3.4.3).

The generalization that emerges from table 1.1 is that φ-contrast neutralization in the Ā-context is constrained by an implicational hierarchy, the *Feature Impoverishment Hierarchy*, given in (13). Thus, the survey establishes the *Feature Hierarchy generalization*, shown in (14).

3. Checkmarks in parentheses do not indicate optional gender agreement. Instead, they collapse two subtypes for each pattern, with each subtype being defined by whether gender agreement is present in the affected paradigm. That is, type 1 applies equally to patterns of anti-agreement where person and number agreement are suppressed and to patterns of anti-agreement where person, gender, and number are suppressed.

(13) *Feature Impoverishment Hierarchy (FIH)*
PERSON ≪ GENDER ≪ NUMBER

(14) *Feature Hierarchy Generalization*
Anti-agreement may be partial. Partial anti-agreement conforms to the FIH.

The Feature Impoverishment Hierarchy (FIH) dictates that an impoverishment rule that deletes feature [X] must also delete all features to the left of [X]. In other words, the FIH requires that a rule may not delete [GENDER] without also deleting [PERSON] simultaneously. However, a rule that deletes [GENDER] and [PERSON] while leaving [NUMBER] in place conforms to the FIH.

It is in the broader, comparative approach that the strength of the Feature Hierarchy generalization emerges. While the majority of languages in the survey are of type 1, leveling all feature contrasts, the FIH is robust in that it is confirmed by languages across several genetically unrelated language families which are distributed over several areas of the world. Examples (15) and (16) list the languages that instantiate type 2 and type 3 anti-agreement patterns, respectively.

(15) *Type 2: [NUMBER] remains*
a. *Romance*: Catalan, Galician
b. *East Sudanic*: Dinka
c. *Berber*: Tashlhit
d. *Dogon*: Ben Tey
e. *Yukaghiric*: Tundra Yukaghir

(16) *Type 3: [NUMBER] and [GENDER] remain*
a. *Berber*: Ghadamès, Ouargli, Touareg, Tamahaq, Tawellemmet, Tamashek
b. *Bantu*: Kilega, Lubukusu, Bemba, Luganda, Abo, Kikuyu, Kinande, Zulu, Ndebele, among others

While it is true that type 3 anti-agreement is limited to two families in my sample, Berber and Bantu, I do not take this as problematic. Berber and Bantu are not genetically related; Berber belongs to the Afro-Asiatic family, while Bantu is Niger-Congo. This rules out the possibility that type 3 anti-agreement has been inherited from a common ancestor of the two language families. Furthermore, the two language families are spoken distantly from one another, which rules out type 3 anti-agreement being an areal feature shared among the two families. Languages exhibiting type 2 anti-agreement are more geographically and genetically diverse, as seen from (15). This, combined with the fact that I have found no counter examples to the FIH in a survey of 63 languages, makes the generalization a strong one.

Another generalization that emerges from table 1.1 is that agreement never expresses more features in the Ā-context than in the non-Ā-context. Likewise, a probe never expresses features in the Ā-context that were not present in the non-Ā-context. I refer to this as the Upper Bound of Agreement generalization, as shown in (17).

(17) *Upper Bound of Agreement generalization*

The features expressed by an instance of agreement X when X is controlled by a nominal with an Ā-feature is always a subset of the features expressed by X when X is controlled by a nominal without an Ā-feature.

In other words, we do not expect to find a language where agreement with an argument indexes person and number in the non-Ā-context, but in the Ā-context indexes gender and number.

Apparent counterexamples to this generalization in the survey can all be analyzed as the loss of agreement on one head, plus the addition of an agreeing head that crossreferences different features of the extracted argument. On such case occurs in the Nilotic language Maasai, (ISO: `mas`, Kenya and Tanzania). Verbs in Maasai take a prefix that indexes the person and number of the subject, as shown in (18).[4]

(18) *Maasai agreement*[5]

a. *Intransitive verb*

á$_i$-tú-úrór-ì *pro*$_i$
1SG-PFV-fall-PST 1SG
'I fell.' (Ashmore 2014:1)

b. *Transitive verb*

ɛ́$_i$-dɔ́l-ɪtá ɔlkɪtɛ́ŋ$_i$ enkɔ́ítóí
3SG-see-PROG OX.SG.M road.SG.F
'The ox sees the road.' (Handschuh 2014:114)

When the subject is extracted, the person/number prefix is apparently replaced by a prefix crossreferencing the *gender* and number of the subject. This is shown for subject relative clauses in (19a)–(19b) and subject focus constructions in (19c)–(19d).

4. Transitive verbs take a distinct set of 'inverse' prefixes in certain contexts that index the person/number of both the subject and the object. I will set this paradigm aside here. For discussion on this system, see Payne et al. (1994). For discussion of how these prefixes behave in Ā-contexts, see Baier (2014).

5. In this and the following Maasai examples, I assume that agreement agrees with a null *pro* when there is no overt subject.

(19) *Maasai subject extraction*

a. *3rd person subject, relative clause*

ɔltʊŋani$_i$ $\boxed{\mathbf{o}_i}$-lotu
man.SG.M SG.M-go
'the man who will go' (Tucker and Mpaayei 1955:106)

b. *3rd person subject, relative clause*

ɪnkɛra$_i$ $\boxed{\mathbf{naa}_i}$-ipoto
child.PL.F PL.F-call
'the children who called' (Tucker and Mpaayei 1955:106)

c. *1st persons subject, focus construction*

nanu$_{i\text{Foc}}$ $\boxed{\mathbf{na}_i}$-ta-reto
1SG SG.F-help.PST
'It is I (fem.) who helped him/them.' (Tucker and Mpaayei 1955:108)

d. *2nd persons subject, focus construction*

iyie$_{i\text{Foc}}$ $\boxed{\mathbf{ɔ}_i}$-rany
2SG SG.M-sing.FUT
'It is you (masc.) who will sing.' (Tucker and Mpaayei 1955:108)

The data in (19) seem to be a counterexample to the Upper Bound of Agreement generalization in (17)—person agreement is lost in the Ā-context, but gender agreement appears. Thus, the features expressed by agreement in the Ā-context (gender/number) are not a subset of the features expressed by agreement in the non-Ā-context (person/number).

Evidence against an analysis of (19) in terms of distinct agreement patterns in the Ā-context and the non-Ā-context comes from object relative clauses. As shown in (20), when an object is relativized, two agreement prefixes appear on the verb. The first cross-references the gender and number of the head of the relative clause (*l-* in 20). The second is the normal subject agreement prefix and indexes the person and number of the subject of the relative clause (*a-* in 20, cf. 1SG agreement in 18a).

(20) *Maasai object relative clause*

alayieni$_k$ $\boxed{\mathbf{l}_k}$-$\boxed{\mathbf{a}_i}$-lo *pro*$_i$ aadol
boy.SG.M SG.M-1SG-go 1SG see
'the boy who I am going to see.' (Carstens 2014:1)

The data in (20) suggest a reanalysis of the pattern of agreement found in subject extraction contexts in (19). Specifically, I propose that subject extraction causes the deletion of the regular subject agreement prefix (that is, anti-agreement), while simultaneously a second prefix appears that crossreferences the gender and number of the extracted subject; that prefix is identical to the outer prefix in (20). This analysis of Maasai anti-agreement is presented in (21).

(21) *Maasai subject extraction (revisited)*

a. *Subject relative clause*

ɔltʊŋani$_i$ **o**$_i$-$\boxed{\textbf{Ø}_i}$-lotu
man.SG.M SG.M-AA-go
'the man who will go.' [= reanalysis of (19a)]

b. *Subject focus construction*

nanu$_{i\text{Foc}}$ **na**$_i$-$\boxed{\textbf{Ø}_i}$-ta-reto
1SG SG.F-AA-help.PST
'It is I (fem.) who helped him/them.' [= reanalysis of (19c)]

On this analysis, the pattern of agreement found in Maasai subject extraction contexts does not pose a challenge to the Upper Bound of Agreement generalization.

For each Ā-sensitivity effect in the sample, I determined whether or not the agreement exponent(s) used in the Ā-context were used only in the Ā-context, or whether they were used in non-Ā-contexts as well. An Ā-sensitivity effect exhibits *Ā-exponence* if the former is the case—the exponent(s) in question are only used when the nominal controlling agreement has an Ā-feature.

This investigation produced another result of the survey. Namely, the leveling of φ-feature distinctions in the Ā-context and Ā-exponence are formally independent of one another. I refer to this result as the *Impoverishment/Ā-exponence Independence generalization*, as shown in (22).

(22) *Impoverishment/Ā-exponence Independence generalization*

Leveling of φ-feature distinctions in the Ā-context may occur without exponence of the Ā-feature itself, and vice versa.

In other words, whether or not a language has φ-impoverishment in the context of Ā-features, it may have Ā-exponence. Thus, we can completely fill in a two by three way typology of the interaction between φ-impoverishment and Ā-exponence, as shown in table 1.2.

		φ-impoverishment		
		TOTAL	PARTIAL	NONE
Ā-exponence	YES	Abaza	Tashlhit	Kobiana
	NO	Fiorentino	Lubukusu	Spanish

Table 1.2: Typology of Ā-exponence and impoverishment

As is evident, all six cells of the predicted typology are attested crosslinguistically. Abaza is a language where φ-impoverishment takes place and there is Ā-exponence, while in Fiorentino, φ-impoverishment takes place but there is no Ā-exponence.[6] In Tashlhit, there is partial φ-impoverishment and Ā-exponence, while in Lubukusu, there is partial φ-impoverishment without Ā-exponence.[7] In Kobiana, φ-impoverishment does not take place, but there is Ā-exponence. Finally, in Spanish, there is neither φ-impoverishment or Ā-exponence.[8]

The typology in table 1.2 falls out naturally if Ā-sensitivity is simply a property of φ-probes in general, and is not subject to crosslinguistic variation. I will refer to the hypothesis that this is the case as the *Ā-Sensitivity Uniformity Hypothesis*, given in (23).

(23) *The Ā-Sensitivity Uniformity Hypothesis (ASUH)*
All φ-probes are Ā-sensitive—they interact with Ā-features on their goal(s). There is no crosslinguistic variation in this property.

Whenever a φ-probe agrees with a goal bearing both [φ] and [Ā], both feature sets are copied back. The variation in table 1.2 emerges from how a language responds morphologically to this process.

Five out of the six languages in table 1.2 exhibit some kind of morphological flagging of the presence of Ā-features on the goal of a φ-probe. Only one, Spanish, does not exhibit *any* effect of Ā-features. Under the account of Ā-sensitive φ-agreement that I develop in this dissertation, this means that Spanish lacks a φ-impoverishment triggered in the context of Ā-features and vocabulary items that realize an Ā-feature. The syntax of Agree is uniform in all six languages, and in all six languages, φ-probes are sensitive to Ā-features on their goals.

Alternatively, we could posit that Ā-sensitivity of φ-probes is itself parameterized, and languages vary with regards to whether φ-probes can interact with Ā-features on

6. For discussion of Abaza, see chapter 2, section 2.2. For discussion of Fiorentino, see chapter 2, section 2.4 and chapter 3, section 3.5.2.
7. For discussion of Tashlhit, see chapter 3, section 3.5.5. For discussion of Lubukusu, see chapter 3, sections 3.4.3 and 3.5.4.
8. See chapter 3, section 3.7 for discussion of Kobiana and Spanish.

their goals. This view would hold that Spanish φ-probes do *not* interact and copy back Ā-features from their goals, precluding any φ-impoverishment and Ā-exponence. This approach would reframe the typology in table 1.2 in the way shown in table 1.3.

		φ-impoverishment		
		TOTAL	PARTIAL	NONE
Ā-sensitive	Ā-exponence – YES	Abaza	Tashlhit	Kobiana
	Ā-exponence – NO	Fiorentino	Lubukusu	??
Ā-insensitive	Ā-exponence – NO	n/a	n/a	Spanish

Table 1.3: Alternative typology of Ā-exponence and φ-impoverishment

While the Impoverishment/Ā-exponence Independence generalization is compatible with a theory that does not adopt the ASUH, such an approach to anti-agreement would face challenges. Namely, even under an impoverishment-centered view of anti-agreement without the ASUH, φ-impoverishment and Ā-exponence still vary independently in the group of languages where φ-probes are Ā-sensitive. Thus, we predict that a language exists in which φ-probes are Ā-sensitive, but there is no overt morphological evidence of this sensitivity. This is the highlighted cell containing '??' in table 1.3. In other words, a theory that does not adopt the ASUH actually underdetermines which analysis should apply to a language like Spanish. It is hard to imagine what types of diagnostics would distinguish the difference between the two highlighted cells in 1.3. Therefore, a theory which includes variation in the Ā-sensitivity of φ-agreement is less restrictive than a theory which does not include such variation.

According to the ASUH, all that should be necessary for a DP to be able to trigger anti-agreement is the presence of an Ā-feature on that DP. Nothing else should be required. The results of the crosslinguistic survey confirm this prediction in several ways.

First, the survey reveals that Ā-movement is not a crucial precondition on the triggering of Ā-sensitivity effects. I refer to this as the *Irrelevance of Movement generalization*, given in (24).

(24) *Irrelevance of Movement generalization*

Anti-agreement does not require Ā-movement of the would-be agreement controller.

There is at least one language, Tundra Nenets, where *wh*-in-situ triggers anti-agreement. Transitive verbs in Tundra Nenets may be agree with their objects in number, as is shown for the dual object in (25). As shown in (26), object number agreement is impossible with a *wh*-phrase object.

(25) *Tundra Nenets object number agreement*

ŋəno-x°h	men'iyeŋa-xəyu–n°?
boat-ACC	see-DU.OBJ-1SG

'I see the boats (DU).' (Nikolaeva 2014:202)

(26) *Object* wh-*question*

a.

ŋəmke-m	taxabta°?
what-ACC	break.3SG

'What did he break?' (Nikolaeva 2014:204)

b.

***ŋəmke-m**	taxabta°-**da**?
what-ACC	break-3SG>SG.OBJ

'What did he break?' (Nikolaeva 2014:204)

Wh-in-situ does not involve covert movement in Tundra Nenets. Evidence for this comes from the fact that *wh*-phrases may take matrix scope out of a island, such as the relative clause island in (27).

(27) Wh-*in-situ in relative clause island with matrix scope*

[$_{DP}$	[$_{CP}$	**xīb'a-h**	xada-wi°	]	ti-m	]	məne-ca-n°?
		who-GEN	kill-PFV.PTCP		reindeer-ACC		see-INTER-2SG

'You saw the reindeer killed by whom?' (Nikolaeva 2014:311)

Based on this and further evidence discussed in chapter 4, section 4.2.1, I conclude that Tundra Nenets *wh*-questions trigger object anti-agreement without undergoing Ā-movement, supporting the Irrelevance of Movement generalization.

Further evidence of this generalization comes from Abaza, where pronouns bound by Ā-operators may trigger *wh*-agreement, even if those pronouns have not themselves moved. An example of this phenomenon is shown in (28).

(28) Wh-*agreement with possessor bound by* wh-*word*

[$_{DP}$	*pro$_i$*	**z**$_i$-qk^{w}marga]	ayʃa	ac'axk^j	**dəzda**$_i$	yə-qa-z-chwaxəz
		POSS.WH-toy	table	under	who	3SG-PV-ERG.WH-hide

'Who$_i$ hid his$_i$ toy under the table?' (O'Herin 2002:272)

In (28), the *pro* possessor of the 'toy' is obligatorily interpreted as a variable bound by 'who'. This forces *wh*-agreement, here the prefix *z-*, on the possessed noun.[9] Because the

9. See chapter 2, section 2.2 for detailed discussion of the morphological realization of *wh*-agreement in Abaza.

bound *pro* in (28) does not undergo movement, this example supports the Irrelevance of Movement generalization.

The second result of the survey that supports the Ā-Sensitivity Uniformity Hypothesis comes from the fact that there is no crosslinguistic asymmetry in which φ-probes can potentially be affected by the presence of an Ā-feature on their goal. I capture this with the *All φ-probes generalization*, given in (29).

(29) *All φ-probes generalization*

Crosslinguistically, any XP that triggers φ-agreement is in principle be capable of triggering anti-agreement on any φ-probe that it interacts with.

In other words, the only precondition on a φ-probe being affected by an Ā-sensitivity effect is the presence of an Ā-feature on that probe's goal. As we have seen throughout this section, Ā-sensitive agreement effects generally surface on verbal categories, affecting argument-verb agreement. But it is not limited to verbal categories. As the data from Abaza possessive anti-agreement in (28), above, shows, noun phrase internal agreement may also be subject Ā-sensitive agreement effects.

It is often stated in the literature on anti-agreement that the effect is limited to being triggered by grammatical subjects. This claim is at odds with the All φ-probes generalization. As we have just seen above in (25)–(26), objects in Tundra Nenets are potential anti-agreement triggers. In fact, the survey reveals that in languages in which there is agreement with multiple arguments in a single clause, there is no crosslinguistic asymmetry in which types of arguments potentially trigger anti-agreement.

This lack of crosslinguistic asymmetry holds whether a language has a nominative-accusative agreement alignment or an ergative-absolutive agreement alignment. A language has nominative-accusative agreement if an instance of agreement X that indexes the features of transitive and intransitive subjects, and an instance of agreement Y that indexes the features of transitive objects. A language has an ergative-absolutive agreement alignment when the opposite is the case, where agreement instance Y indexes the features of intransitive subjects and transitive objects, and agreement instance X indexes the features of with transitive subjects. This view of agreement alignment is summarized in table 1.4. In the table, I use the labels A, S and O to abbreviate the three relevant grammatical roles: A is the most agent like argument of a transitive verb; O the most patient like argument of a transitive verb; and S is the lone argument of an intransitive verb.

	Argument		
	A	S	O
Nominative-accusative	X	X	Y
Ergative-absolutive	X	Y	Y

Table 1.4: Alignment with two probes

In the table, X and Y represent distinct instances of agreement in a clause. What is important in table 1.4 is the relative patterning of these expressions of agreement and the fact that they are in some way morphosyntactically distinct.

For nominative-accusative agreement systems, we expect to find languages where both subjects (S+A) and objects (O) are capable of triggering anti-agreement (both X and Y exhibit Ā-sensitive agreement effects). We also expect to find languages where only subjects trigger anti-agreement (only X exhibits Ā-sensitive agreement effects) and languages where only objects are possible anti-agreement triggers (only Y exhibit Ā-sensitive agreement effects). For ergative-absolutive agreement systems, we expect to find languages where both ergative arguments (A) and absolutive (S+O) arguments trigger anti-agreement (both X and Y exhibit Ā-sensitive agreement effects). We also expect to find languages only ergative arguments are capable of triggering anti-agreement (only X exhibits Ā-sensitive agreement effects) and languages where only absolutive arguments are capable of triggering anti-agreement (only Y exhibits Ā-sensitive agreement effects). These possible distributions, along with examples of languages that exhibit each distribution, are given in table 1.5.

	Target probe(s)	Anti-agreement?			Language
		A	S	O	
Nom-Acc	X+Y	✓	✓	✓	Zulu
	X	✓	✓	✗	Palauan
	Y	✗	✗	✓	Ndebele
Erg-Abs	X+Y	✓	✓	✓	Abaza
	X	✓	✗	✗	Kaqchikel
	Y	✗	✓	✓	Selayarese

Table 1.5: Possible distributions of anti-agreement[10]

10. Checkmarks indicate that the argument in question triggers anti-agreement when it has an Ā-feature,

The fact that there is no gap in which distributions of grammatical roles are potential anti-agreement triggers crosslinguistically supports All φ-probes generalization.[11]

The final important result of the survey is the Not All Ā-features generalization, as shown in (30).

(30) *Not All Ā-features generalization*
Anti-agreement may be limited to certain types of Ā-constructions.

The generalization above captures the fact that in some languages, anti-agreement may triggered by more specific Ā-features (such as [WH] or [FOC]). This for instance is the case in the Nilotic language Dinka, where topicalization and operator movement trigger distinct patterns of φ-agreement.[12]

In the next section, I will show how the six generalizations discussed above are problematic for earlier accounts of anti-agreement. As we will see, each account struggles to contend with at least one of the generalizations. Before moving on to the discussion of these previous accounts, table 1.6 lists the languages included in the survey. Each language is given with its ISO 639-3 code and the family it belongs to. See the appendix for a more detailed summary of the properties of anti-agreement in each language.

Language	**ISO 639-3**	**Family**
Abaza	`abq`	West Caucasian
Abkhaz	`abk`	West Caucasian
Kabardian	`kbd`	West Caucasian
Adyghe	`ady`	West Caucasian
Ubykh	`uby`	West Caucasian
Matsigenka	`mcb`	Arawak
Caquinte	`cot`	Arawak
Bare	`bae`	Arawak
Yine	`pib`	Arawak
Baniwa	`bwi`	Arawak
Tariana	`tae`	Arawak
Lubukusu	`buk`	Bantu

Table 1.6: Languages surveyed

whereas an X mark indicate that it does not trigger anti-agreement, even when it has an Ā-feature. Shading is a visual aide.

11. I discuss this generalization, and its importance for the theory of anti-agreement developed here, in chapter 5, section 5.2.

12. See chapter 3, section 3.4.1 and chapter 4, section 4.3.1 for discussion of Dinka.

Language	**ISO 639-3**	**Family**
Kilega	`lgm`	Bantu
Luganda	`lug`	Bantu
Bemba	`bem`	Bantu
Abo	`abb`	Bantu
Kikuyu	`kik`	Bantu
Kinande	`nbb`	Bantu
Zulu	`zul`	Bantu
Ndebele	`nbl`	Bantu
Chamorro	`cha`	Austronesian
Palauan	`pau`	Austronesian
Selayarese	`sly`	Austronesian
Makassarese	`mak`	Austronesian
Ibibio	`ibb`	Lower Cross River
Tarifit	`rif`	Berber
Kabyle	`kab`	Berber
Tashlhit	`shi`	Berber
Tamazight	`tzm`	Berber
Ouargli	`oua`	Berber
Ghadamès	`gha`	Berber
Tamahaq	`thv`	Berber
Tawellemmet	`ttq`	Berber
Tamashek	`tmh`	Berber
Jamsay	`djm`	Dogon
Bunoge	`dgb`	Dogon
Najamba	`dbu`	Dogon
Ben Tey	`dbt`	Dogon
Tommo So	`dto`	Dogon
Dinka	`dks`	Nilotic
Maasai	`mas`	Nilotic
Somali	`som`	Cushitic
Gawwada	`gwd`	Cushitic

Table 1.6: Languages surveyed

Language	**ISO 639-3**	**Family**
Afar	`aar`	Cushitic
Sheko	`she`	Omotic
Fiorentino	–	Romance
Trentino	–	Romance
Catalan	`cat`	Romance
Galician	`glg`	Romance
Halkomelem	`hur`	Salish
Comox	`coo`	Salish
Squamish	`squ`	Salish
Northern Straits	`str`	Salish
Lushootseed	`lut`	Salish
Seereer	`srr`	Atlantic
Kobiana	`kcj`	Atlantic
Tadaksahak	`dsq`	Songhay
Turkish	`tur`	Turkic
Lelemi	`lef`	Kwa
Tundra Yukaghir	`ykg`	Yukaghiric
Kaqchikel	`cak`	Mayan
Tamil	`tam`	Dravidian

Table 1.6: Languages surveyed

1.3 Theories of anti-agreement

Since Ouhalla's (1993) seminal work on anti-agreement, there have been a large number of analyses advanced in the literature to account for the effect. As mentioned above, however, there is at present no broad consensus in the literature as to which theoretical principles should be held responsible. In this section, I review the approaches that have been put forward. As we will see, most previous accounts of anti-agreement require movement of the DP that triggers the effect. Thus, these accounts are challenged by the Irrelevance of Movement generalization (see example 24, above). Though the mechanisms vary from analysis to analysis, it is the presence movement that ultimately leads to an alternate form of agreement morphology and/or reduction in φ-feature contrasts. The lack of this movement prerequisite is an important way in which my account differs from all previous approaches to anti-agreement.

1.3.1 Binding theoretic approaches

The leading idea behind binding theoretic accounts of anti-agreement is that there are conflicting requirements placed on the empty category that is left by an Ā-moved DP. These conflicting requirements lead to a suppression of agreement with an Ā-moved DP.

Ouhalla (1993) argues that languages that exhibit anti-agreement are languages with agreement that is rich enough to license *pro*-drop. The configuration that Ouhalla is concerned with is shown in (31). When the subject is extracted from Spec-IP in that example, the agreement present on I is rich enough to identify the empty category in Spec-TP as *pro* and not as an Ā-trace.

(31) *Rich agreement identifies* e *as* pro
[$_{CP}$ DP$_i$ [$_{IP}$ e_i = *pro*$_i$ Agr$_i$+I […]]]

The issue that arises in (31) is that pronouns are subject to Condition B of the Binding Theory, which Ouhalla extends to Ā-binding with the Ā-Disjointness Requirement in (32).

(32) *Ā-Disjointness Requirement* (Ouhalla 1993:490)
A pronoun must be Ā-free in the smallest Complete Functional Complex (CFC) which contains it.

Ouhalla takes the relevant CFC in (31) to be CP, meaning that the *pro* in Spec-IP is not Ā-free. This rules out rich agreement cooccurring with an extracted subject. On the other hand, if rich agreement is suppressed, Ouhalla argues, the empty category in subject position is not identified as *pro*, but instead as a plain Ā-trace, which has no inherent disjointness condition associated with it. This makes the resulting structure, shown in (33), licit.

(33) *Suppressed agreement (anti-agreement) identifies* e *as Ā-trace*
[$_{CP}$ DP$_i$ [$_{IP}$ e_i = *wh*-trace ~~Agr~~+I […]]]

For Ouhalla, therefore, the function of anti-agreement is to circumvent the conflict between Ā-binding and rich agreement.

Schneider-Zioga (1995) extends Ouhalla's account to anti-agreement in the Bantu language Kinande. The difference between Ouhalla's and Schneider-Zioga's analyses lies in the nature of 'rich agreement'. For Ouhalla, rich agreement is just that—agreement with a null element. For Schneider-Zioga, on the other hand, rich agreement is itself a pronoun (essentially, a pronominal clitic), and therefore subject to Condition B (Ā-Disjointness

Requirement). This means that canonical rich agreement cannot be locally Ā-bound. In Kinande anti-agreement is the morphophonological realization of a variable that can be Ā-bound.

The reliance on the nature of so called 'rich agreement' poses two problems for the Ouhalla-style binding account of anti-agreement. First, there are languages that display anti-agreement in which the affected agreement paradigm is not particularly 'rich', such as Dinka and Tundra Nenets. To focus in on the Dinka case, consider the agreement paradigm in tables 1.7 and 1.8.

	SG	PL
1/2	Ø-	Ø-
3	à-	áa-

Table 1.7: Dinka declarative present

	SG	PL
1/2	é-	é-kè-
3	é-	áa-kè-

Table 1.8: Dinka declarative past

Here I adopt the metric for 'rich agreement' proposed by Koeneman and Zeijlstra (2014), given in (34).

(34) *Metric for rich agreement* (adapted from Koeneman and Zeijlstra 2014:574)
A language exhibits rich agreement if and only if agreement involves at least the same featural distinctions as those manifested in the smallest pronoun inventories universally possible.

Koeneman and Zeijlstra take the featural distinctions to be manifested in the smallest pronoun inventories to be [±SPEAKER], [±PARTICIPANT], and [±PLURAL] (Greenberg 1963; Harley and Ritter 2002; Cysouw 2003). Thus, under their definition, for an agreement paradigm to be rich, it must make reference to (at least) those three feature distinctions. This is not the case for Dinka—only [±PARTICIPANT] and [±PLURAL] are required to capture the morphological distinctions in tables 1.7–1.8. As Dinka displays anti-agreement, it serves as counterexample to Ouhalla's generalization that all languages with anti-agreement are rich agreement languages.[13]

The second problem posed by reliance on the nature of rich agreement, as noted by Ouhalla himself, is that there are languages with rich agreement that do not display anti-agreement, such as Spanish.[14] Thus, there is no causal relationship between a language having 'rich' agreement and a language having anti-agreement.

A more recent binding theoretic account of anti-agreement is put forward by Wiltschko (2006), for Halkomelem Salish. In Halkomelem, third person subjects are indexed on tran-

13. For detailed discussion of anti-agreement in Dinka, see sections 3.4.1 and 4.3.1.
14. For discussion of this fact in Mexican Spanish, see section 3.7.

sitive verbs with a dedicated ergative agreement suffix *-es*. In subject relative clauses, *-es* is ungrammatical even when expected.

(35) *Halkomelem anti-agreement*

tl'ó	te	íle	swíyeqe$_i$	[	q'óy-t-(*es$_i$)	te	qwá:l	]
this.is	DET	here	man		kill-TR-3ERG	DET	mosquito	

'This is the man who killed the mosquito.' (Wiltschko 2006:242)

Wiltschko argues that ergative *-es* is *thematic agreement* (θ-agreement) between the transitive subject in Spec-*v*P and the head *v* under θ-role assignment. Wiltschko assumes that θ-agreement is a form of variable binding, and she uses this assumption to derive the lack of ergative agreement in (35). The key idea is that when the subject in Spec-*v*P is a variable Ā-bound by an Ā-operator in Spec-CP, Ā-binding and θ-agreement conflict. The configuration is shown in (36).

(36) *Ā-binding and θ-agreement conflict*

θ-AGREEMENT

[$_{CP}$ OP$_i$ … [$_{vP}$ x$_i$ AGR$_i$+V […]]]

Ā-BINDING

Wiltschko argues that the Bijection Principle (Koopman and Sportiche 1983) prevents the variable in Spec-*v*P from being simultaneously Ā-bound and bound by θ-agreement. The Bijection Principle requires that every operator must Ā-bind exactly one variable, and each variable must be Ā-bound by exactly one operator. This means that θ-agreement between *v* and a variable in Spec-*v*P will prevent that variable from being Ā-bound by the operator in Spec-CP. That is, when there is ergative agreement (= θ-agreement), the operator in Spec-CP will have no variable to bind. The solution is to suppress θ-agreement.

Wiltschko's analysis is too specific to particular types of agreement to extend to a large number of languages. As I will show throughout this work, anti-agreement is not limited to θ-linked agreement, or any type of agreement in particular, for that matter. Even within the group of ergative-absolutive languages that exhibit anti-agreement, there is both ergative anti-agreement and absolutive anti-agreement (see table 1.5, above). That is, crosslinguistically, anti-agreement is not linked to a specific θ-role.

While the Wiltschko-style and Ouhalla-style analyses of anti-agreement employ different theoretical mechanisms, they share the same core intuition. Namely, agreement morphology that is affected by Ā-extraction is characterized by some property that conflicts with Ā-binding. In addition to the analysis-specific challenges these accounts face, the binding theoretic family of explanations of anti-agreement face more general problems.

First, in the modern theoretical context, these approaches require stipulations about the nature of lower positions in Ā-movement chains that are not independently justified. For instance, for Ouhalla, the lower copy in Spec-IP subject to condition B; the binding theory ignores the fact that this copy is included in a movement chain. This does not happen elsewhere. Furthermore, with the adoption of the Copy Theory of Movement (Chomsky 1995), phrasal movement leaves a full copy of the moved phrase, instead of a trace. The binding theoretic accounts of anti-agreement require that lower positions in a movement chain be representationally different than the head of the chain. If movement leaves full copies of the moved XP, however, this possibility is removed—each position in a chain is occupied by identical material.

Second, these accounts rely on independent theorems of grammar for which the empirical basis has been reduced over time. Ouhalla and Schneider-Zioga rely on the Ā-Disjointness Requirement. This requirement was introduced to account for the Highest Subject Constraint on resumption, which blocks the occurrence of a resumptive pronoun in the highest subject position of a clause in many languages (McCloskey 1990). However, there are now other ways of deriving that constraint (see (Deal 2016a) and Klein 2013 for two recent approaches). Wiltschko relies on the Bijection Principle, which was introduced to account for Weak Crossover (WCO). As Ruys (2000) shows, however, Reinhart's (1976; 1983) requirement that binding happens from an A-position is more successful at deriving the distribution of WCO.

1.3.2 Syntactic restrictions on Ā-movement

A second prominent line of thinking in the anti-agreement literature holds that the effect arises because of syntactic constraints on movement. The high-level logic of these accounts is generally as follows. First, suppose that φ-agreement with a DP requires that that DP enter into a certain structural configuration, and that this configuration blocks (Ā-)movement of that DP. For such a DP to be Ā-moved, it must not enter into the required structural configuration for φ-agreement, and therefore no φ-agreement occurs when such a DP is extracted.

This family of accounts of anti-agreement differ on the specifics of the nature of the syntactic constraints employed to derive the effect. In this section, I discuss three families of this sort of analysis: anti-locality approaches, Criterial Freezing approaches, and approaches based on feature strength.

1.3.2.1 Anti-locality

The leading idea behind anti-locality approaches to anti-agreement is that Ā-movement of an agreeing DP creates a dependency that is 'too short' in some way. In these accounts, anti-agreement either reflects a way of getting around this problem, or is a byproduct of the way that the problem is bypassed. The arguments that I develop in this section also appear in Baier 2017.

One strand of the anti-locality approach to anti-agreement is based on Grohmann's (2003) Anti-Locality Hypothesis, given in (37), which states that a phrase cannot move from one position in a local domain to another within the same domain. Specifically, Grohmann divides the clause into three 'prolific domains', shown in table 1.9.

Domain	**Projections**	**Function**
Θ-Domain	*v*P/VP	Thematic relations
φ-Domain	IP/TP (+articulation)	Agreement processes
Ω-Domain	CP (+articulation)	Discourse information

Table 1.9: Grohmann's (2003) Prolific Domains

Each domain is responsible for a different type of relation or process and corresponds to a projection or set of projections along the traditional clausal spine. Movement within a prolific domain is ruled out by the Anti-Locality Hypothesis.

(37) *Anti-Locality Hypothesis*: (Grohmann 2003:26)
Movement within a prolific domain is banned.
$[_{\Omega}$ XP$_i$ $[_{\Omega}$ ~~XP$_i$~~ $[_{\varphi}$ … $[_{\Theta}$ …]]]]
✗

Revising her earlier binding-based account, Schneider-Zioga (2000, 2007) develops an analysis of anti-agreement in the Bantu language Kinande based on (37). She claims that preverbal subjects in Kinande are usually situated in the left periphery of the clause, as shown in (38).

(38) *Canonical subject position is in TopP*
$[_{\text{CP}}$ C $[_{\text{TopP}}$ DP$_i$ Top $[_{\text{TP}}$ *pro*$_i$ Agr$_i$+T …]]]

The subject can be based generated in Spec-TopP because it is related to a *pro* in Spec-TP. This *pro* is licensed by canonical subject agreement morphology on T, allowing the subject to be dislocated when such agreement morphology occurs.

However, the configuration in (38) creates a problem when the subject DP must undergo Ā-movement to Spec-CP. Because CP and TopP are part of the same prolific domain, Ā-movement from Spec-TopP to Spec-CP is too local by (37). This is shown in (39).

(39) *Canonical subject position is in TopP*

$^*[_{\text{CP}}\ \text{DP}_i\ \ \text{C}\ \ [_{\text{TopP}}\ \ t_i\ \ \text{Top}\ \ [_{\text{TP}}\ \ pro_i\ \ \text{Agr}_i\text{+T} \ldots]]]$

✗

For Schneider-Zioga, this problem in (39) is fixed by base generating the subject lower than the topic position, outside the Ω-Domain. This allows the subject to extract without violating anti-locality. Anti-agreement reflects the fact that Spec-TP is not occupied by *pro*.

Cheng (2006) develops another analysis of anti-agreement in a Bantu language based on Grohmann's Anti-Locality Hypothesis. Focusing on Bemba, she argues that anti-agreement is the result of the language overcoming Anti-Locality violations that occur in the course of subject extraction. She assumes Grohmann's (2003) Condition on Domain Exclusivity, given in (40).

(40) *Condition on Domain Exclusivity (CDE)* (Grohmann 2003:78)
An object O in a phrase marker must have an exclusive occurrence in each Prolific Domain ΠΔ, unless duplicity yields a drastic effect on the output; that is, a different realization of O in that domain ΠΔ at PF.

The CDE mandates that only one copy in a chain be spelled out per prolific domain, with a crucial caveat: other copies may be spelled out, as long as they are modified in some way.

Cheng's analysis focuses on the Bantu language Bemba. She observes that subject relative clauses in Bemba require the verb to carry a relative prefix that agrees with the noun class of the extracted subject in addition to normal subject-verb agreement. Furthermore, if the subject is of noun class 1, anti-agreement occurs instead of canonical subject agreement morphology.

(41)
umulumendo	ú-**u**/***a**-ka-belenga	ibuku
CL1.boy	CL1.REL-CL1.AA/*CL1.SBJ-FUT-read	CL5.book

'The boy who will read the book' (Cheng 2006:197)

Cheng claims that the relative prefix and anti-agreement in (41) are the overt realization of the copies left by movement of the extracted subject. In subject relatives, the subject DP moves from Spec-TP to an inner Spec-CP and then the Spec of a higher CP projection. Cheng assumes that Spec-TP is part of the Ω-Domain, relaxing Grohmann's (2003) original delineation shown in table 1.9. Movement of the subject therefore induces two Anti-Locality violations, since there have been two instances of movement within the same prolific domain. To get around this, the lower copies are spelled out as prefixes on the verb, thereby meeting the needs of the CDE.

Both Grohmann-style anti-locality approaches outlined above face challenges. First, an important characteristic of Bantu anti-agreement is that its effects are limited to subjects of noun class 1; subjects of other noun classes are not affected.[15] Neither Schneider-Zioga or Cheng derive this difference. For Schneider-Zioga, anti-agreement morphology is unable to license *pro* in Spec-TP, which is required for a subject to be canonically dislocated. Thus, anti-agreement occurs because there is no need to license *pro* when the subject will be extracted. However, it is unclear why canonical agreement morphology *cannot* occur with a non-dislocated subject. Furthermore, this analysis does not derive the limiting of anti-agreement in Kinande to class 1 subjects. Given Schneider-Zioga's assumptions about the role of agreement morphology in subject extraction and licensing, there would need to be two agreement markers for each logical combination of φ-features in Kinande. Yet the overwhelming majority of those markers do not alternate, leaving it mysterious why only class 1 should be different.[16] Cheng faces a similar problem. For Cheng, the morphological difference between class 1 agreement in non-Ā-contexts, which takes the form *a-*, and class 1 agreement in the Ā-context, which takes the form *u-*, has do with the fact that *u-* is the realization of an overtly spelled out copy in Spec-TP. For Cheng, this overtly spelled out copy qualifies as a pronoun. It is unclear why only class 1 should be different. There is no principle reason for this fact, given the mechanism Cheng employs.

Second, and more generally, these accounts have trouble extending to languages outside of Bantu. For both Cheng and Schneider-Zioga, it is crucial that anti-agreement triggering Ā-movement involve some movement *within* the left periphery of the clause. This movement in the left periphery induces an anti-locality violation, as shown in (42).

(42) a. *Schneider-Zioga (2007): Spec-TopP to Spec-CP movement is illicit*

$$\underbrace{[_{\text{CP}}\ \text{DP}_i\ \text{C}\ [_{\text{TopP}}\ \text{DP}_i\ \text{Top}}_{\Omega\text{-Domain}}\ [_{\text{TP}}\ \textit{pro}_i\ \text{Agr}_i\text{+T}\ \ldots\ ]]]$$

15. In many, but not all, Bantu languages, anti-agreement also affects 1st and 2nd person subjects. This is the case in Lubukusu, as discussed in chapter 3, sections 3.4.3 and 3.5.4. It is not the case in Kikuyu, where only class 1 subjects are affected (see chapter 3, section 3.5.3).

16. Furthermore, there do not seem to be any Bantu languages where there is an alternation in subject agreement triggered by whether or not the subject is pronominal (Larry Hyman, p.c.).

b. *Cheng (2006): Spec-CP to Spec-CP movement is illicit*

$$\underbrace{[_{\text{CP}}\ \text{DP}_i\ [_{\text{CP}}\ \text{DP}_i\ \text{C}\ [_{\text{TP}}\ \text{DP}_i\ \text{T}}_{\Omega\text{-Domain}}\ [\ \dots\ ]]]]$$

For Schneider-Zioga, subjects are canonically dislocated in Kinande, in Spec-TopP; this is what forces the alternative extraction strategy, as movement from Spec-TopP to Spec-CP is blocked. This analysis cannot be extended to all languages with anti-agreement. For example, the canonical position of subjects in Tarifit is postverbal, as shown in (43a), yet Ā-movement of the subject still triggers anti-agreement, as shown in (43a).

(43) *Tarifit anti-agreement*[17]

a. *Agreement in VSO declarative*

th-zra	**Nunja**	aqzin
3SG.F-see.PFV	Nunja	dog

'Nunja saw the dog.' (El Hankari 2010:138)

b.

man tamghart$_i$	ay	**yzrin**	/	***t**-zra	$\_\__i$	Mohand
which woman	C	see.PTCP	/	3SG.F-see-PFV		Mohand

Intended: 'Which woman saw Mohand?' (Ouhalla 1993:479)

The postverbal position of the subject in (43a) casts doubt on an analysis of these subjects as dislocated to a left peripheral position.[18]

Cheng's analysis of relativization in Bantu also involves movement in the left periphery, from an inner Spec-CP to an outer Spec-CP. It is difficult to see how one could falsify the existence of such movement, however. Furthermore, for Cheng, anti-agreement is actually a result of movement from Spec-TP to the inner Spec-CP in (42b). This requires a relaxing of Grohmann's Ω-Domain downward in Spec-TP. This lessens the restrictiveness of the theory.

Furthermore, for Cheng, it is crucial that some form of agreement morphology shows up in extraction contexts. This is what we expect if anti-agreement morphology is the partial spell out of a lower copy to repair an illicit representation. But there are instances of anti-agreement that involve the simple lack of any agreement morphology. A simple example of such a language comes from Seereer (ISO: `srr`, Senegal). Consider the examples in (44).[19]

17. The difference between *th-* and *t-* in (43) is the result of an orthographic difference between sources. *Nunja* in (43) is a female name.

18. For further discussion of the syntax of Berber, see chapter 2, 2.3.

19. All Seereer data in this dissertation come from elicitation conducted with a native speaker by the author

(44) *Anti-agreement in Seereer*

a. okoor oxe **a**-jaw-a maalo fe
man the 3-cook.SG-FV rice DET
'The man cooked rice.'

b. *Subject* wh-*question*
an (*__a__-)jaw-**u** maalo?
who 3-cook.SG-FOC rice
'Who cooked rice?'

Example (44a) is a basic affirmative clause in which verb takes the 3rd person subject agreement prefix *a*-. In example (44b), however, where the subject has been *wh*-questioned, the prefix *a*- is obligatorily absent.[20]

Another anti-locality approach is argued for by in work on the Mayan language Kaqchikel by Erlewine (2016). He pursues the idea that anti-agreement arises from the somewhat different anti-locality constraint in (45).

(45) *Spec-to-Spec anti-locality (SSAL)* (Erlewine 2016:431)[21]
Ā-movement of a phrase from the Specifier of XP must cross a maximal projection other than XP.

This constraint rules out movement of the type in (46), but allows movement of the type in (47).

(46) *Movement crosses only XP, violates (45)*
$[_{\mathrm{YP}}\ \alpha\ \mathrm{Y}\ [_{\mathrm{XP}}\ \ t_{\alpha}\ \mathrm{X} \ldots]]$

(47) *Movement crosses XP and YP, does not violate (45)*
$[_{\mathrm{ZP}}\ \alpha\ \mathrm{Z}\ [_{\mathrm{YP}}\ \mathrm{Y}\ [_{\mathrm{XP}}\ \ t_{\alpha}\ \mathrm{X} \ldots]]]$

Erlewine argues that this constraint can account for anti-agreement that affects ergative agreement in Kaqchikel in the following way. First, he argues that the φ-probe responsible for ergative agreement in Kaqchikel is located on T and that it has the EPP property. This means that the external argument must move to Spec-TP for ergative agreement to occur.

and others during the 2012-2013 UC Berkeley field methods course and subsequent independent elicitation by the author and J. Merrill with the same speaker at UC Berkeley.

20. For discussion of the Seereer data, see section 5.3, pages pages 238 to 246.

21. See Bošković (2015:620) for a slightly different statement of the same principle.

Therefore, agreeing transitive subjects are too local to Spec-CP to undergo Ā-movement, as shown in (48).

(48) *Spec,TP-to-Spec,CP movement blocked*
[$_{CP}$ subject C [$_{TP}$ ___ T [$_{vP}$ ___ *v* [$_{VP}$ V object]]]]
✗

Instead, transitive subjects must skip Spec-TP altogether. They extract from their base position in Spec-*v*P, moving directly to Spec-CP. This is shown in (49).

(49) *Transitive subject skips Spec,TP*
[$_{CP}$ subject C [$_{TP}$ T [$_{vP}$ ___ *v* [$_{VP}$ V object]]]]

Because agreement on T is parasitic on the EPP, there can be no such agreement in (49). Erlewine argues that anti-agreement is a form of morphological repair in this context.

Erlewine's account is based on the assumption that languages exhibiting anti-agreement effects share the crucial structural property in ((50)):

(50) Given the structure [$_{YP}$ α Y [$_{XP}$ β X […]]],
  i. φ-features on X can only agree with a DP at β.
  ii. Ā-movement targets α.

This makes a crucial prediction. Namely, if an DP is able to control agreement on X without being located at β in (50), then that DP should be able to undergo Ā-movement without the loss of agreement. Extraction from a position below β should be uninhibited by anti-locality, and therefore, agreement should not be affected. That is, there is a critical link between φ-agreement having the EPP property and anti-agreement. As I argue in Baier (2017), this link is simply not borne out in the crosslinguistic survey. There are clear examples of languages where φ-agreement is *not* parasitic on movement to a specifier in an anti-local configuration with Spec-CP. Tarifit Berber is an example of one such language. As discussed above in reference to Schneider-Zioga's analysis of anti-agreement, subjects in Berber remain in a postverbal position while still controlling full φ-agreement on the verb (see 43, above). Thus, anti-agreement in Tarifit cannot result from a ban on anti-local movement to Spec-CP.

Furthermore, there are cases of anti-agreement triggered by DPs which do not move to control agreement. For example, in Abaza, anti-agreement can be triggered by a pronoun bound by a DP bearing Ā-features. This is shown in (51).

(51) Wh-*agreement with possessor bound by* wh-*word*

[$_{\text{DP}}$	pro$_i$	**z**$_i$-qkʷmarga]	ayʃa	ac'axkʲ	**dəzda**$_i$	yə-qa-z-chwaxəz
		POSS.WH-toy	table	under	who	3SG-PV-ERG.WH-hide

'Who$_i$ hid his$_i$ toy under the table?' (O'Herin 2002:272)

In (51), the null *pro* serving as the possessor of noun 'toy' is bound by the *wh*-word *dəzda* 'who'. The bound pronoun controls possessor agreement on the noun, which in this example must take the anti-agreement form *z*-. Full possessor agreement is impossible. It is reasonable to assume that the bound *pro* does not move from its base position, and thus (51) is an example of anti-agreement being triggered in the absence of Ā-movement. I discuss such cases of *indirect* agreement in detail in chapter 4.

The tight link between movement and anti-agreement is a property of both styles of anti-locality account. Because Ā-movement from a certain position that controls agreement is 'too close' to the landing site, anti-locality either forces movement from an alternative position (as in Schneider-Zioga's or Erlewine's accounts) or forces a repair to the illicit structure (as in Cheng's account). However, as discussed in the section 1.2, the crosslinguistic survey shows that there is no direct link between Ā-movement and Ā-sensitive agreement effects (the Irrelevance of Movement generalization). Thus, anti-locality accounts cannot be generalized to cover the entire range of data revealed by the survey.

Anti-locality accounts face a more general conceptual challenge. Namely, these accounts are *fragile*, in that they are very sensitive to minor differences to clause structure, both within a single language and crosslinguistically. In the case of Spec-to-Spec anti-locality, the fragility arises because of the very specific configuration needed to trigger anti-agreement. If this configuration is not present in a given case of anti-agreement, then the account cannot generalize. The same kind of problem extends to Grohmann-style anti-locality. While prolific domains may be more resilient in terms of the range of clause structures they apply to, the structural size of a given domain must be able to vary to cover anti-agreement in different languages. This reduces the explanatory power of the account. The specific anti-locality constraints surveyed here cannot contend with the range of variation observed in the anti-agreement sample while remaining a coherent explanation. That is, anti-locality simply cannot offer a unified account of anti-agreement phenomena.

1.3.2.2 Feature strength

A different perspective on the nature of anti-agreement comes from Richards (1997, 2001), who develops a theory of movement chains in terms of positional feature strength. In Richard's theory, a strong feature gives an instruction to PF that requires the pronunciation of the link in the chain in its specifier, and a movement chain cannot include more than one strong position, as shown in (52).

(52) *Chain with two strong positions is illicit*
* STRONG ... STRONG ... X
(adapted from Richards 1997:123)

When Ā-movement targets Spec-CP, C has a strong feature that induces this movement. If the position that the Ā-moved DP is marked by strong φ-agreement, PF gets contradictory instructions as to where to pronounce an agreeing Ā-moved DP. That is, Ā-movement from a position characterized by strong φ-features will be illicit because the resulting chain will have the form in (52).

Richards argues that anti-agreement is morphological evidence that the φ-features in such a configuration are 'weakened'. Thus, the chain will have the form in (53).

(53) *Chain with one strong position is well formed*
✓ STRONG ... WEAK ... X
(adapted from Richards 1997:123)

Thus, when anti-agreement occurs, there is only one strong feature in the chain, the one on C, and the derivation converges. Anti-agreement, from this perspective, is a repair strategy for illicit chain representations

In a series of papers, Henderson (2007, 2009, 2013) develops an analysis of anti-agreement in Bantu that hinges on the idea that a movement chain with two strong positions is illicit. Henderson assumes that both C and T have φ-features in Bantu. Evidence for this comes from the fact that in many Bantu languages, both subject and non-subject extraction constructions exhibit an extra agreeing morpheme that agrees with the extracted phrase towards the left edge of the clause. In cases of non-subject extraction, the morpheme surfaces on an overt complementizer, while in cases of subject extraction the morpheme surfaces as an additional agreeing prefix on the verb.[22] Because T has a set of strong φ-features, movement from Spec-TP to Spec-CP produces a chain with the form in (52)—both Spec-TP and Spec-CP are strong. Building on an idea from Boeckx (2003), Henderson argues that when such a chain is formed, the φ-features on C can agree with the φ-features on T to alleviate the violation. The core idea of this repair is that C-T agreement unifies the φ-features on C and T, yielding a chain with only one strong position. For Henderson, the C-T agreement relation is what leads to anti-agreement.

Taking Richard's (1997; 2001) and Henderson's (2013) accounts together, there are two ways that the theoretical concept of feature strength can be used to explain the presence of

22. See section 3.4.3 for discussion of this additional agreeing prefix in Lubukusu.

anti-agreement in the Ā-context. First, as Richards proposes, anti-agreement could be the weakening of originally strong φ-features that morphologically surfaces as a reduction in or lack of agreement. Second, as Henderson proposes, anti-agreement could be the morphological realization of agreement between φ-features of C and φ-features on T.

While these different possible repair strategies make a feature strength account of anti-agreement more flexible than anti-locality accounts, the feature strength approaches share a fundamental flaw with them. Namely, feature strength is essentially just a different encoding of the EPP. Both feature strength and the EPP property are second order features in the sense of Adger and Svenonius (2009)—they are instructions on how the syntax should order and localize elements that bear matching features. Thus, the problems for anti-locality accounts that arise from their reliance on the EPP also extend to feature strength accounts. Namely, both families of accounts run afoul of the Irrelevance of Movement generalization.

Furthermore, Henderson's account explicitly relies on the idea that in anti-agreement languages, C and T both have (strong) φ-features. While this is clearly the case for Bantu languages, it does not generalize crosslinguistically—there are languages where C shows no overt φ-agreement with an extracted subject argument. This is the case in restrictive relative clauses in the northern Italian variety Fiorentino. As shown in (54), agreement inside the relative clause must take the 3rd person masculine singular form, even though the head of the relative clause, *ragazze* 'girls', is 3rd person feminine plural. The complementizer, *che*, shows no overt agreement.[23]

(54) *Fiorentino subject restrictive relative clause*

Le	ragazze	**che**	gli/*le	ha/*hanno	parlato	con	te
the	girls	C	3SG.M/3PL.F	have.3SG/have.3PL	spoken	with	you

'the girls who have spoken to you' (Brandi and Cordin 1989:126)

The lack of overt agreement on C in (54) poses a challenge for an account of anti-agreement in terms of φ-agreement between C and T like Henderson's. It is unclear why such an agreement relation would not be overtly reflected on C. One would have to stipulate that the φ-features on C that are responsible for anti-agreement are simply never spelled out in Fiorentino, while they are in Bantu languages. While such a stipulation is certainly possible, it would be necessary in all languages that do not exhibit overt complementizer φ-agreement in anti-agreement contexts.[24]

23. See sections 2.4, 3.5.2, and 5.3 for discussion of Fiorentino.

24. Preminger (2017a) argues that there is no morphophonologically undetectable φ-agreement. If he is right, it would be impossible to formulate an account of anti-agreement in which the effect arises because of null complementizer agreement.

1.3.2.3 Criterial Freezing

Several authors have developed analyses of anti-agreement within the theory of Criterial Freezing (Rizzi 2006, 2007). This framework claims that a subset of heads in the clausal spine with scope or discourse informational properties must meet a formal condition called *criterial satisfaction*—they must be immediately c-commanded by a phrase bearing a feature that matches their criterial requirement. A phrase that satisfies a criterion of a head is said to be in a *criterial position* and is frozen in place—it cannot move further.

Rizzi (2006) suggests that the canonical subject position is a criterial position and that there is a Subject Criterion satisfied by the clausal subject. He argues that the there is a head Subj merged above T and that Spec-SubjP is the canonical subject position. Rizzi (2006) and Rizzi and Shlonsky (2007) argue that the ECP reduces to the Subject Criterion. That is, it underlies asymmetries in extraction between subjects and non-subjects. Rizzi and Shlonsky argue that because of the Subject Criterion, subjects must make use of various strategies to avoid Spec-SubjP to be extracted.

Shlonsky (2014) argues that anti-agreement in Berber is one of these strategies. He proposes that the lack of agreement in subject extraction contexts in Berber is because SubjP is truncated when the subject must be extracted. If SubjP is present, the subject will be frozen in position in Spec-SubjP and will be unable to extract. In the absence of SubjP, the subject is free to extract because the criterial position never exists. In addition, because Shlonsky assumes that Subj hosts subject φ-agreement, there is no agreement with subject extraction. The participle form that occurs with subject extraction in Berber reflects that SubjP is not present in the structure.

Diercks (2010) develops an analysis of anti-agreement in the Bantu language Lubukusu based on Criterial Freezing and the Subject Criterion. Diercks exploits a suggestion made by Rizzi and Shlonsky that the Subject Criterion can be fulfilled by some element other than the subject, allowing the subject to skip Spec-SubjP altogether when it needs to extract. Specifically, Rizzi and Shlonsky propose that a complementizer merged above SubjP can satisfy the Subject Criterion if that complementizer is nominal in nature. Diercks claims that this is the what derives the anti-agreement effect in Lubukusu. If the subject moves to Spec-SubjP, it will be frozen there because it fulfills the Subject Criterion, as shown in (55).

(55) *Criterial Freezing blocks movement to Spec-CP*

FREEZING

$[_{\text{CP}}\ \_\_\_\ \ \text{C}\ \dots\ [_{\text{FinP}}\ \text{Fin}_{[-\text{NOM}]}\ [_{\text{SubjP}}\ \boxed{\text{DP}_i\ \ \text{Subj}}\ [_{\text{TP}}\ \dots\ ]]]]$

✗

AGREE

Diercks shows that Lubukusu subject extraction requires a prefix that agrees with the subject in addition to normal subject agreement and changes to normal subject agreement for certain subjects. He argues that the additional prefix is a nominal Fin head merged above SubjP to allow the subject to extract. Evidence for this being the case comes from the fact that such prefixes are identical to certain nominal prefixes used in the nominal class system. He argues that changes to canonical subject agreement arise because the features of the nominal Fin value the φ-features on Subj. This analysis is shown in (56).

(56) *Nominal Fin allows subject to skip Spec-SubjP*

FREEZING

$[_{CP}$ ___ C … $[_{FinP}$ $\boxed{\text{Fin}_{[+\text{NOM}]}\ [_{SubjP}\ \text{Subj}}$ $[_{TP}$ … DP_i …]]]]

AGREE

✓

Diercks's analysis of anti-agreement shares a core intuition with Henderson's analysis, namely that anti-agreement in Bantu arises from φ-agreement between a C head and T. The accounts differ in the reason this agreement relation is necessary.

The Criterial Freezing approach to anti-agreement ties the effect directly to the nature of subjects. As such, it predicts that the morphological effects of anti-agreement should not arise with non-subject arguments. Therefore, a Criterial Freezing account cannot explain the All φ-probes generalization. The Criterial Freezing approach misses the general character of Ā-sensitive agreement effects.

Furthermore, the Criterial Freezing family of approaches to anti-agreement shares a fundamental theoretical device with the feature strength and anti-locality approaches discussed in the previous sections. Like those accounts, the Criterial Freezing account relies on the idea that a second order property of the heads or features responsible for φ-agreement is what leads to anti-agreement. That is, there is a property of the positions associated with φ-agreement that makes them hard to extract from in some way. Crucially, however, that property is related to movement to that position. As we have seen, this makes these accounts impossible to extend to the full range of data in the crosslinguistic survey.

1.3.3 Other approaches

In this section, I discuss some other approaches to anti-agreement that do not fit neatly into any of the families of theories above. Overall, however, the accounts surveyed in this section still conform to the intuition that anti-agreement is fundamentally a syntactic effect.

1.3.3.1 Baker 2008

Baker (2008) examines anti-agreement in the Niger-Congo language Ibibio. He shows that *wh*-subjects trigger an anti-agreement effect even though the subject appears to stay in situ. Baker observes that while non-subject *wh*-phrases must front to the left of a focus complementizer *ké*, (57b), subject *wh*-phrases may not appear with *ké*, (57a); they appear to remain in canonical subject position.

(57) a. *Subjects do not appear with* ke

ànìyé	(*ké)	**í**-ké	**í**-wèt	ǹgwèt.
who	C	AA-PST	AA-write	book

‘Who wrote a book?’ (Qin 2014:111)

b. *Non-subjects front with* ke

ǹsŏ	*(ké)	Akon	á-ké	á-wèt?
what	C	Akon	3SG-PST	3SG-write

‘What did Akon write?’ (Qin 2014:111)

Baker argues that while subject *wh*-phrases appear to remain in situ, they do in fact undergo movement to Spec-CP, like non-subject *wh*-phrases, but that this movement is covert. Taking up suggestions by Bobaljik (2002) and Fox and Nissenbaum (1999) that covert movement is just normal movement with spell-out of a lower copy, Baker proposes that there is a process of Feature Deletion which deletes features on lower copies in a chain, and ultimately, it is this operation of Feature Deletion that leads to anti-agreement.

Baker proposes that when a movement chain is transferred to the interfaces, Feature Deletion removes phonological and semantic features of all but one copy in that chain. In an overt *wh*-movement language, the phonological features are deleted on all but the highest copy in a chain. In a *wh*-in-situ language, the lowest copy’s phonological features are kept. Additionally, whenever a *wh*-chain is formed, WH-features on copies below the matrix scope position must be deleted. This process is separate from phonological feature deletion. Thus, in, a *wh*-in-situ language like Ibibio, the phonological features of the top copy are deleted, but the semantic features are kept. In the lower position, the phonological features are kept, but the semantic features deleted.

Baker proposes that in anti-agreement languages, φ-features of a copy are deleted when the semantic features of a copy are deleted. Thus, when the lower copy in a *wh*-chain has its semantic WH-feature deleted, its φ-features are deleted as well. This process is shown in (58), where ‘who’ represents the phonological features of the copies in the chain, ‘wh’ represents the semantic features, and ‘< . . . >’ represents a deleted feature.

(58) *Feature Deletion of [φ] with [wh] → anti-agreement* (adapted from Baker 2008:626)

[$_{\text{CP}}$	<who>	…	[$_{\text{TP}}$	who	…	]]
	wh	…		<wh>		
	φ	…		<φ>		

Following Bobaljik (2008), Baker assumes φ-agreement is a postsyntactic operation. Crucially, for Baker, Feature Deletion applies *before* Agree. Therefore, after Feature Deletion has applied in (58), there are no φ-features in the subject position for T to agree with, and anti-agreement results. Baker further proposes that the process of φ-features deletion on the lower copy is parameterized, accounting for why some languages show anti-agreement effects and why some do not.

Of the theories discussed here, Baker's proposal is the closest in spirit to mine, in that it involves postsyntactic manipulation of φ-features. However, it differs in the target of φ-feature deletion. For me, φ-feature deletion targets the probe, not the goal as it does for Baker. This theoretical choice means that Baker's theory requires Ā-movement of the would-be agreement controller DP to trigger anti-agreement. Without movement, there would be no lower copy in a chain for Feature Deletion to target. Thus, Baker's theory runs afoul of the Irrelevance of Movement generalization.

Additionally, it is not clear how Baker's account could derive languages in which both subjects and objects control agreement, but only subjects (or objects) trigger anti-agreement when they are extracted. Because Feature Deletion is an operation that maps a syntactic structure to an interface representation, why should it treat one copy created by Ā-movement different from another?

Furthermore, the assumption that φ-feature deletion targets the goal, and not the probe, requires theoretical assumptions that are not required by my account. The problem involves the deletion of φ-features on lower copies in a movement chain and the nature of spell-out. To be precise, Baker argues that features like [wh] and [φ] can be deleted independently of the phonological features (PF-features) that are pronounced in a copy's position. That is, in (58), PF-features ('who') are deleted without deleting [wh] and [φ] in the higher position, leading to apparent *wh*-in-situ with lower deletion of [wh] and [φ]. For Baker's analysis to go through, the semantic features (wh), φ-features, and PF-features must be formally separate; minimally, the algorithm that determines the distribution of features in a movement chain must be able to manipulate PF-features independently of semantic features and φ-features.

This makes Baker's account a non-starter in any theory of the syntax-morphology interface in which PF-features are not present until late in the derivation, like Distributed Morphology (DM). For DM, the narrow syntax manipulates only formal, non-PF-features, like [wh] or [φ]. Only after the narrow syntax can PF-features be paired with formal feature bundles via the operation Vocabulary Insertion. If insertion of PF-features is a process of matching formal features like [WH] and [φ] with phonological exponents, as DM assumes, then for a copy to be realized in a certain position, *such morphosyntactic features must be present in that position in the first place.* That is, it is impossible to delete features like [WH] and [φ] in a position X while allowing PF-features that express [WH] and [φ] to be inserted at X. In Baker's system, this is exactly what is required—non-PF-features are deleted in the lower position, while PF-features are maintained there.

In a late insertion theory of morphology, φ-features from a goal must be copied onto the probe *before* matching of those features with PF-features, regardless of whether agreement is located in the narrow syntax or located in the postsyntactic component. That is, in standard DM, Agree and Vocabulary Insertion are crucially ordered as in (59).

(59) *Order of Agree and Vocabulary Insertion*
Agree ≻ Vocabulary Insertion

So, if a copy is in position X is targeted for Vocabulary Insertion, then probes that target position X should already have been able to target the copy there. Furthermore, because Vocabulary Insertion at position X requires features be present, those features cannot have been deleted before Agree takes place with any copy there. This means that Baker's account of anti-agreement is incompatible with the simple order in (59), taken as standard in a theory of the syntax-morphology interface like DM.

1.3.3.2 Feature Inheritance

Ouali (2008) builds an account of Berber anti-agreement based on Chomsky's (2004; 2008) operation of Feature Inheritance. Under Chomsky's theory, T does not start with its own φ-features, but instead 'inherits' those features from C. The core idea behind Ouali's account is that there are three ways that C can transfer its φ-features to T, listed in (60).

(60) *C-to-T Transfer operations* (consolidated from Ouali 2008, 2011)
   a. DONATE: Transfer φ-features from C to T without keeping a copy on C.
   b. KEEP: No φ-features are transferred from C to T.
   c. SHARE: Transfer φ-features from C to T and keep a copy on C.

Ouali argues that all three operations are at work in Berber and that they are employed in different configurations of (non-)extraction.

The different versions of Feature Inheritance in (60) are all possible, but which operation applies in a given derivation is regulated by economy principles. When there is no extraction from the clause, C is able to DONATE its features to T. This results in subject agreement on the verb. In cases of subject extraction, Ouali assumes that the subject bears an uninterpretable WH-feature which is checked against an interpretable WH-feature on

C. In these cases, if C DONATES its φ-features to T, the *wh*-subject will never be able to get its WH-feature checked, because C will be inactive for purposes of further agreement. Therefore, the derivation will crash.

Ouali argues that in cases like these, the operation KEEP applies: C keeps its φ-features and does not transfer them to T. Thus, the subject can extract directly to Spec-CP, valuing C's φ-features and its WH-feature. Since T does not have any φ-features, it will not show any morphological agreement. This derives anti-agreement. In cases of object extraction, the object has a WH-feature. This is when SHARE applies. C keeps a copy of its φ-features and T gets a copy as well. C agrees with the WH-object and T agrees with the subject. Thus, T will always show agreement in object extraction contexts.

Ouali's account faces several challenges on both conceptual and empirical grounds. On the conceptual side, the theoretical validity of Feature Inheritance has been called into question (Diercks 2011). On the empirical side, Ouali's approach predicts that anti-agreement should only affect probes hosted by phase head complements. This follows directly from the nature of Feature Inheritance—the φ-probe on T is merged on C and only subsequently transferred to T. Concretely, then, we do not expect to find languages where anti-agreement triggered by the extraction of a single argument affects multiple φ-probes.

However, such behavior is clearly attested in the survey. In Fiorentino, for example subjects control φ-agreement both on the finite verb and on a preverbal subject clitic. However, as shown in (61), *wh*-questioning the subject triggers anti-agreement on both the verb and the clitic—both must appear in a default 3rd person singular (masculine) form. Full agreement is impossible.[25]

(61) *Fiorentino subject* wh-*questions trigger default agreement*

*Quante	ragazze	**gli/*le**	**ha/*hanno**	parlato	con	te
how.many	girls	3SG.M/3PL.F	have.3SG/have.3PL	spoken	with	you

'How many girls have spoken to you?' (Brandi and Cordin 1989:124–125)

I argue in chapter 2 that the subject clitic and agreement on the finite verb realize distinct φ-probes on the clausal spine. Therefore, in (61), we have an example of multiple φ-probes being affected by subject Ā-movement.

A further consequence of the Feature Inheritance approach is that we should expect to find more languages where anti-agreement always cooccurs with complementizer φ-agreement. This is because anti-agreement results from the retention of a φ-probe on C, instead of the inheritance of that φ-probe by T. As I discussed in section 1.3.2.2 on feature strength, we do not find a large proportion of such languages in the survey.

25. This is the same pattern of agreement found in the restrictive relative clause in (54), above.

Finally, the Irrelevance of Movement Generalization also provides a strong argument against the Feature Inheritance approach. In order for such an account to go through, the DP that triggers anti-agreement must undergo Ā-movement. This is because the economy principles that dictate which type of inheritance occurs in a given clause will force C to keep its φ-features if there is Ā-movement to Spec-CP. Thus, a feature inheritance account would be unable to model languages like Abaza, where a pronoun bound by an Ā-operator is able to trigger anti-agreement.

1.3.3.3 Order of Agree operations

Georgi (2014) derives anti-agreement effects through the timing of syntactic operations. For Georgi, this is part of a larger program of deriving patterns of morphological reflexes of *wh*-movement through the derivational timing. Georgi assumes that all structure building and feature valuation is triggered by features on heads. She assumes that there are two broad types of features: structure building features, signified [•F•], and probe features, signified [F:__]. Structure building features are satisfied via Merge, while probe features are satisfied via Agree. Furthermore, there are two types of structure building features: Those specified for a specific type of constituent, for example [•WH•], which triggers final *wh*-movement, and [•EF•], which triggers generic edge movement. These edge features are also involved in intermediate movement in long distance dependencies

Georgi argues that each language has an ordering statement that dictates which feature operates first when there are multiple features on the same head. In analyzing Tarifit Berber anti-agreement, Georgi proposes the language has the ordering statement shown in (62).

(62) *Ordering statement in Tarifit Berber* (Georgi 2014:190)
[•WH•] > [φ:__] > [•EF•]

The ordering statement in (62) forces *wh*-phrases in Tarifit Berber to move before the φ-probe responsible for subject agreement has had a chance to probe. This means that when there is a subject *wh*-phrase, it will move out of the probe's c-command domain before it has a chance to value that subject agreement probe.[26]

In order for Georgi's system to go through, she must assume that the φ-probe affected by anti-agreement is hosted by the head targeted by Ā-movement (that is, the head that hosts the WH-probe). For example, in Tarifit, she must assume that the φ-probe is located on C. If the φ-probe were located on a lower head, like T, then that probe would necessarily Agree with the subject *wh*-phrase before the WH-probe was merged. But in Berber, and a

26. Given the Copy Theory of Movement, one might expect that the lower copy of the relevant DP should still be able to serve as a goal of the φ-probe. Georgi circumvents this issue by assuming that lower copies in a movement chain are invisible for Agree (cf. Chomsky 2000).

great many other languages in my survey, canonical agreement does not show up in the left periphery of the clause—it surfaces on some lower projection. Thus, Georgi's system requires large-scale postsyntactic rearrangement of features to get the surface position of agreement morphology to work out to account for anti-agreement in such languages.

The Irrelevance of Movement generalization also presents a major problem for Georgi's account. For her, what distinguishes the non-Ā-context from the Ā-context is that in the latter, Ā-movement bleeds φ-agreement. If there is no Ā-movement, no bleeding should take place. Thus, languages where a DP can trigger anti-agreement without undergo Ā-movement are a strong argument against Georgi's approach.

1.3.3.4 Lack of verb movement

Phillips's (1997) account of anti-agreement links agreement with a Ā-trace to overt agreement morphology and verb movement. Specifically, he suggests that Ā-traces in subject position do not need to be licensed by agreement. Therefore, when the subject position is occupied by a Ā-trace, T does not need to bear agreement. For Phillips, it is agreement on T that forces movement of the verb to T, and therefore when there is a subject Ā-trace, it does not have to move to T, and no agreement surfaces on the verb. Ouhalla (2005a) proposes a similar link between agreement, anti-agreement and verb raising. For him, it is specifically the feature [PERSON] which forces raising.

In many of the languages surveyed for this dissertation, anti-agreement is not evinced by the full lack of morphology. Instead, the verb appears in some reduced paradigm or in an entirely new form altogether (see the Feature Hierarchy generalization in 14, above). This raises a question for accounts like Phillips' and Ouhalla's (2005a). Specifically, why does the verb still bear agreement (or agreement-like) morphology in the Ā-movement context if the probe responsible for that agreement does not have to agree with an Ā-trace? Put another way, if the verb does not have to raise to a probe that has agreed with an Ā-trace, why doesn't anti-agreement always result in a severing of agreement morphology from the verb?

This problem is made more acute by languages where the agreement morphology affected by anti-agreement is non-affixal, such as subject clitics in the northern Italian dialects (see section 2.4). Because this morphology does not require verb raising to appear, it is unclear why the failure of a verb raising to this position should affect it at all.

Furthermore, Ā-movement of the DP that triggers anti-agreement should be required under Phillips account. This is because movement is required to create an Ā-trace. Without Ā-movement, there is nothing that distinguishes the Ā-context from the non- Ā-context in Phillips account—the head in question is still agreeing with a full DP, and therefore, verb raising to that head should be forced, regardless of whether the DP has an Ā-feature or not.

More generally, like the binding theoretic approaches to anti-agreement discussed above, Phillips' account requires stipulations about the nature of lower copies in a Ā-movement chain. Given the Copy Theory of Movement, it is unclear why probes would not agree with the lower copy of a movement chain.

1.4 Theoretical background

The analysis that I develop in this dissertation is situated within the frameworks of Minimalism (Chomsky 1995, 2000, 2001, 2008) and Distributed morphology (DM; Halle 1990, Halle and Marantz 1993). The grammatical architecture assumed by Minimalism and DM is shown in figure 1.1. The syntactic derivation operates on abstract morphosyntactic and semantic feature bundles that do not yet contain any phonological features. At certain points during the course of a syntactic derivation, portions of the structure are *transferred* to the interface with phonology and to the interface with semantics. The component of the grammar that is called morphology is located on the PF branch of the post-syntax. During this subcomponent of the grammar, morphological operations manipulate the abstract morphosyntactic feature bundles and associate these features with phonological features.

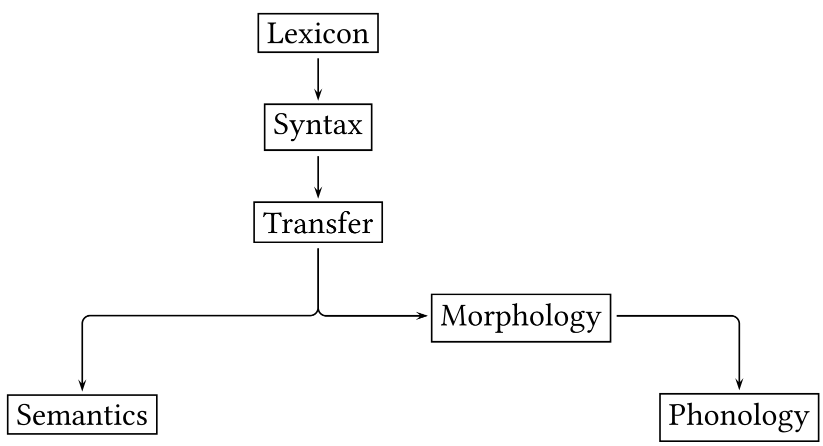


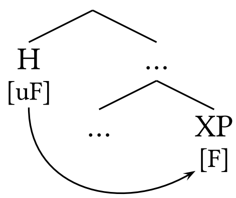
Figure 1.1: The grammatical architecture in Minimalism/DM

In the sections 1.4.1 and 1.4.2, I lay out important specific assumptions I make about the syntactic and morphological components of the grammar.

1.4.1 Syntactic assumptions

In the Minimalist approach to syntax that I assume here, a hierarchical syntactic representation is built by repeated application of the operations Merge and Agree. Merge is a structure building operation that combines two syntactic items and forms a new one. Agree is a syntactic operation that copies a feature value from one head to another (Chomsky 2000, 2001, 2004). Specifically, Agree is an operation in which a head bearing a *probe* for some feature ([uF]) initiates a search into its c-command domain for the closest *goal* bearing a feature ([F]) matching the probe, as shown in (63).[27]

(63) *Agree establishes a probe–goal relationship*



The result of Agree is the copying back of the features of the goal to the probe, where they can later be spelled out in the morphology.

Typically the features that are copied back to the probe are taken to be those that narrowly match the probe. In this work, however, I assume that features beyond those matching the probe can be copied back. I follow the work of Deal (2015, 2016b), who argues that the features which are transferred to a probe by Agree need not be confined to those which cause the probe to stop probing. Specifically, Deal proposes that we must distinguish a probe's *interaction* condition(s) and *satisfaction* condition(s).

(64) *Interaction and Satisfaction in φ-agreement*

A probe H may interact with feature set F even if it may only be satisfied by feature set G, G⊆F.

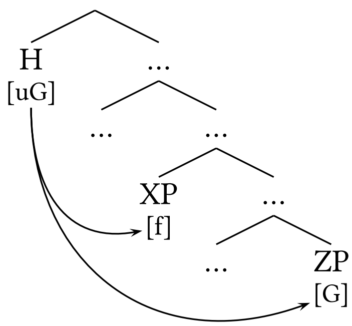
a. **Interaction**: Probe H interacts with feature [f] by copying [f] to H.

b. **Satisfaction**: Probe H is satisfied by feature G if copying G to H makes H stop probing.
(adapted from Deal 2016b:3)

When a probe interacts with a feature but is not satisfied by that feature, it continues searching until its satisfaction condition is met. This allows probes to Agree with multiple goals in their c-command domain, as shown in (65).

27. The use of a prefix "u" in the notation [uF] does not indicate that I consider a probe to be a truly *uninterpretable* or *unvalued* feature in the sense of Chomsky (2000, 2001). I adopt this notation simply to distinguish probes from non-probing features in a convenient way.

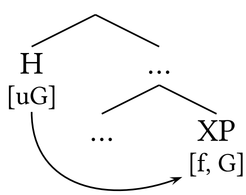
(65) *Search for [G] allows interaction with intervening [F]*



In (65), a probe satisfied by feature [G] (represented [uG]) on H first interacts with XP, resulting in [f] being copied back to H. H's probe's satisfaction condition is not met, and therefore it searches further. When it finds ZP bearing [G], it copies back [G] to H and halts search.

Importantly, this behavior will also occur when [f] and [G] reside on the same XP.

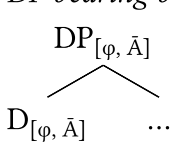
(66) *Interaction with multiple features on the same XP*



In (66), a probe satisfied by feature [G] searches into its c-command domain and finds XP, which bears features [f] and [G]. Given the definitions in (64), of the interaction features [F] include both [f] and [G], the probe on H will interact with both [f] and [G], and both of those features will be copied back to the probe. Probing will then halt.

I adopt a syntax in which all phrasal movement, including Ā-movement, is prefigured by Agree (Chomsky 1995, 2001; van Urk 2015). I assume that Ā-movement is driven by Ā-features. For the purposes of the work here, it will suffice to say that Ā-features on arguments are introduced on D. I assume that φ-features are distributed throughout the DP but ultimately end up on D, and that both Ā- and φ-features percolate to DP so that they can be accessible outside DP (Danon 2011; Norris 2014), as shown in (67).

(67) *DP bearing both Ā- and φ-features*

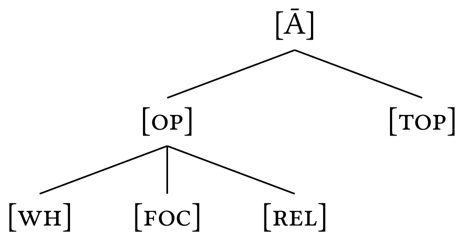


The DP in (67) will constitute a valid goal for both φ-probes ([uφ]) and Ā-probes ([uĀ]).

I argue in chapter 2, section 2.2.2, that it is this arrangement of features in (66) which is responsible for Ā-sensitivity of φ-agreement. Supposing that φ-features and Ā-features are both members of a larger feature set, φ-probes will interact with both [φ] and [Ā]. This means that a φ-probe that encounters the DP in (67) as a goal will copy back both [φ] and [Ā] from that DP.

I assume that the class of Ā-features is internally complex and this class includes (at least) [wh], [foc], [rel], and [top]. Following work by Starke (2001), Rizzi (2004), Abels (2012), Aravind (2018) and others, I further assume that Ā-features are hierarchically arranged, with subclasses and superclasses and entailment relations among features. I adopt the specific hierarchy in (68), adapted from Aravind (2018:19).

(68) *Ā-feature geometry*



In this model, the feature [foc] entails higher-level features like [op] (a subclass of operator features) and [Ā]. In this dissertation, I assume that probes may be relativized to different places on this hierarchy. That is, a probe may be satisfied by an Ā-feature (represented [uĀ]), or a feature lower down on the hierarchy, like [op] (represented [uop]). Furthermore, I assume that an XP that bears a feature [F] in (68) also bears all features that [F] entails. For example, if a DP bears [foc], that DP will have the Ā-feature structure shown in (69).

(69) *Feature structure for [foc]*

$$\begin{bmatrix} \bar{\text{A}} \\ | \\ \text{op} \\ | \\ \text{foc} \end{bmatrix}$$

This means that an Ā-probe that is satisfied by any of these features will be satisfied by a DP bearing the feature structure in (69). For simplicity, going forward, however, I will list only the lowest feature on the hierarchy in representations. That is, a DP bearing the feature structure in (69) will only be listed with [foc].

1.4.2 Morphological assumptions

The present work is situated in the framework of Distributed Morphology (DM; Halle 1990, Halle and Marantz 1993). Two core aspects of DM that play a crucial role in my account are *late insertion* and *underspecification*. Late insertion refers to the idea that in DM, morphology follows syntax. The syntactic derivation operates on abstract morphosyntactic feature bundles devoid of phonological content. In the morphological component, *Vocabulary Insertion* inserts phonological features in the form of vocabulary items into syntactic terminals. A vocabulary item (VI) is a pairing of morphosyntactic features with phonological features as shown in (70).

(70) *General structure of a vocabulary item (VI)*
/phonological features/ ↔ [morphosyntactic features]

Underspecification refers to the idea that the morphosyntactic features that a VI spells out need not be fully specified. That is, the features that a VI is specified for does not need to contain all possible features that are specified on the terminal node targeted for Vocabulary Insertion. There are two consequences of this. First, a given VI may realize terminals with different feature bundles, yielding syncretism. Second, more than one VI may be compatible with a given feature bundle, and therefore, constraints are necessary to regulate the choice of which VI is inserted in the latter case. The relevant principles are the *Subset Principle*, shown in (71), and *Specificity*, (72).[28]

(71) *Subset Principle* (based on Keine 2010:8)
A vocabulary item V is inserted into a terminal node N iff (a) and (b) hold:
a. The morphosyntactic features of V are a subset of the morphosyntactic features of N.
b. V is the most specific vocabulary item that satisfies (a).

(72) *Specificity* (based on Keine 2010:8)
A vocabulary item V_1 is more specific than a vocabulary item V_2 iff V_1 contains more morphosyntactic features than V_2.

To see how these principles regulate Vocabulary Insertion, consider the following abstract paradigm shown in table 1.10, which contrasts 3 values of one feature (the vertical axis) and 2 values of a second feature (the horizontal axis).

28. The combined effect of the Subset Principle in (71) and Specificity in (72) is that a less general vocabulary item is always preferred to a more general vocabulary item those items compete for insertion. This intuition is not unique to Distributed morphology and has deep roots in this history of grammatical analysis, including the Pāṇinian principle of more narrowly defined grammatical rules taking precedence over less narrowly defined rules.

	π	κ
α	*-i*	*-u*
β	*-a*	*-u*
γ	*-a*	*-u*

Table 1.10: Abstract 3x2 paradigm

The paradigm in table 1.10 contains three distinct exponents and is based on five features ([α, β, γ, π, κ]). If VIs were fully specified, six distinct VIs would be needed to account for the pattern. In other words, it would be necessary to posit three distinct VIs *-u*, each of which spells out one of the feature combinations under which *-u* surfaces ([α, κ], [β, κ] and [γ, κ]). Such an account would miss a crucial generalization about the distribution of *-u*; namely, that it occurs only in cells of the paradigm containing [κ]. It would be a total coincidence that all cells containing [κ] are spelled out *-u* and that *-u* only occurs in cells containing [κ].

On the other hand, an account with underspecification can model the paradigm in table 1.10 with just three VIs, one for each distinct morpheme.

(73) *VIs for table 1.10*
  a. /-i/ ↔ [α, π]
  b. /-a/ ↔ [π]
  c. /-u/ ↔ [κ]

This inventory of VIs accounts for all syncretisms in table 1.10 without any accidental homophony. Insertion of these VIs is regulated by the Subset Principle, (71), and Specificity, (72). As an example, consider first a terminal node with the features [α, π]. Both *-i* and *-a* are eligible for insertion at such a terminal node by the Subset Principle, because both exponents realize a subset of the features on that node. However, the VI that is inserted will be *-i* because it is more specific than *-a*. If a terminal node has the feature set [β, π], however, only *-a* will be eligible for Vocabulary Insertion, because it is the only VI that is specified for a subset of the features on such a node. In this way, underspecification provides a mechanism to capture systematic syncretisms.

Another feature of DM crucial to the present work is its set of postsyntactic operations that manipulate feature bundles between Transfer and Vocabulary Insertion. These include *fission*, which splits the morphosyntactic features of one node into two sister nodes (Halle 1997); *fusion*, which combines two sister nodes into a single node (Halle and Marantz 1993); and *impoverishment*, which deletes features from a feature bundle in a specific context (Bonet 1991; Noyer 1992, 1997; Halle and Marantz 1993; Keine 2010).

Impoverishment is the postsyntactic operation that plays the most central role in the following chapters. As noted, it deletes morphosyntactic features from a feature bundle before Vocabulary Insertion can take place. By deleting features, it may block an otherwise possible exponent from insertion if the Subset Principle is not fulfilled after impoverishment has taken place. Impoverishment therefore results in the insertion of a less specified morpheme, and as such, systematically leads to a retreat to the more general case in certain environments (and therefore, can lead to contextual syncretism).

I take impoverishment rules to take the form in (74), where X is some feature (or set of features) and Y is some feature (or set of features) present in X's feature bundle.

(74) *Schematic impoverishment rule*
[X] → Ø / [__, Y]

Thus, impoverishment is simply the deletion of a feature or features in the context of some other feature(s).

To see how impoverishment can lead to contextual syncretism, consider a slightly more complicated version of the scenario laid out above.

	W		Z	
	π	κ	π	κ
α	*-i*	*-u*	*-a*	*-u*
β	*-a*	*-u*	*-a*	*-u*
γ	*-a*	*-u*	*-a*	*-u*

Table 1.11: Abstract contextual syncretism

Suppose table 1.11 describes the realization of the same set of morphosyntactic features as table 1.10, above. Here, however, we see how these features are realized in relation to two other features, which I have labeled W and Z. In the context of feature [W], the same paradigm as table 1.10 surfaces. In the context of feature [Z], the distribution of exponents shifts slightly. The exponent *-a* expands into the highlighted cell containing [α, π].

In a model that includes impoverishment and underspecification, this contextual shift can be accounted for with the same set of VIs from above, repeated here as (75), and the impoverishment rule in (76).

(75) *VIs for table 1.11*
a. *-i* ↔ [α, π]
b. *-a* ↔ [π]
c. *-u* ↔ [κ]

(76) *Impoverishment rule for table 1.11*
$[\alpha] \rightarrow \varnothing$ / [_, Z]

The impoverishment rule in (76) deletes the feature [α] from a feature bundle of the form [α, π, Z], resulting in a node with the feature specification [π, Z]. By doing so, this rule blocks the insertion of the VI *-i* because that VI's feature specification is no longer a subset of the feature present in the affected bundle. While the impoverishment also affects bundles of the form [α, κ, Z], resulting in [κ, Z], such deletion will not affect Vocabulary Insertion. This is because the exponent normally inserted into such a bundle, *-u* is only specified for [κ] in the first place.

Finally, as morphology of φ-agreement plays a central role in what follows, it is worth discussing the set of φ-features that is made use of by the morphology. I follow much work on the nature of φ-features in assuming that categories like PERSON are not primitives. Instead, these φ-features can be decomposed into several more basic oppositions. I adopt a view of φ-features in which they are binary valued features.[29] The basic inventory of φ-features that I will assume in this work is provided in (77).

(77) *Inventory of φ-features* (Halle 1997; Harbour 2017; Nevins 2007)
a. [±AUTHOR] — distinguishes 1st person from 2nd and 3rd person
b. [±PARTICIPANT] — distinguishes 1st and 2nd person from 3rd perso n
c. [±PLURAL] — distinguishes plural from singular number
d. [±ANIMATE] — distinguishes animates from inanimates
e. [±FEMININE] — distinguishes feminine from masculine gender

The adoption of a totally binary set of φ-features is not uncontroversial. In fact, there is much debate over the proper characterization of the set of φ-features.[30] As chapter 3 explores this topic in much detail, I will hold a detailed discussion of my assumptions about φ-features until that part of the dissertation.

1.5 Outline of the dissertation

In the following chapters, I argue that changes to the form of φ-agreement with a DP bearing an Ā-feature is best modeled as arising in the *morphological component*. Specifically, I argue that the presence of an Ā-feature on the goal of φ-agreement may lead to *impoverishment* of the φ-features from the probe.

29. At least in the morphological component. In the syntax, there is evidence that φ-features are privative (Nevins 2011; Preminger 2014). However, in chapter 3, we will see that patterns of partial anti-agreement provide a strong argument for binary values φ-features in the morphology.
30. See Harbour (2017) for a good recent overview of the debate.

In chapter 2, I show that there is a deep similarity in the patterns of agreement with an Ā-feature bearing DP in Abaza, Tarifit, and Fiorentino, even though these languages differ in the exact morphological outcome of this situation. Namely, in all three languages, the morphology that is used in the Ā-context is *underspecified.* I develop a theory of anti/*wh*-agreement effects that captures this deep similarity.

The first part of the proposal is that φ-agreement is sensitive to the presence of Ā-features on a goal DP. Specifically, I propose that φ-probes copy back both [φ] and [Ā] features from a DP with both those features. Thus, *Ā-sensitive φ-agreement* leads to a feature bundle on the probe that contains both [φ] and [Ā] features.

The second part of the proposal is that *φ-impoverishment* may target the feature bundle containing [φ] and [Ā] features in the morphology. This derives the emergence of new syncretisms in the presence of Ā-features on the goal. In some languages, this may also allow for the spelling out of morphology that realizes the remaining Ā-feature that triggered impoverishment.

In chapter 3, I examine the morphological patterns that emerge in the context of Ā-features. I show that neutralization of φ-features in the presence of an Ā-feature can be total or partial and that the patterns of partial leveling are limited—there is an implicational hierarchy that governs which contrasts can be leveled (this is the Feature Hierarchy generalization, see example 14, above).

Building on much existing work on the structure of φ-features, I adopt a version of Campbell's (2012) two dimensional φ-geometries. These rich feature sets capture both dominance relations among φ-feature categories (PERSON, GENDER and NUMBER) and entailment relations between *subfeatures* within those categories (such as ±PARTICIPANT and ±AUTHOR). I argue that impoverishment operates over these rich φ-sets. Coupled with a constraint that restricts deletion to φ-categories, this theory of impoverishment derives all and only the patterns allowed by the hierarchy (13).

Furthermore, I show that impoverishment in the context of Ā-features may be conditioned by the presence of certain φ-features within the targeted bundle, a phenomenon I refer to as *complex impoverishment.* I demonstrate that both marked (such as +PARTICIPANT or +PLURAL) and unmarked features (such as -PARTICIPANT or -PLURAL) are attested as this second conditioning feature. Complex impoverishment therefore provides a compelling argument for treating Ā-sensitive agreement effects as resulting from a morphological operation, and not simply as the failure of syntactic agreement.

I further show that φ-feature impoverishment in the context of an Ā-feature and the realization of the Ā-feature that triggers impoverishment are formally independent, encoded above as the Impoverishment/Ā-exponence Independence generalization. That is, a language may have a reduced number of φ-feature contrasts in the context of an Ā-feature without ever morphologically realizing the Ā-feature. This is the case in Fiorentino (see sections 2.4 and 2.4). On the other hand, the Ā-feature may be realized without any φ-impoverishment taking place. This is the case in Kobiana, where an entirely new φ-agreement paradigm emerges in the context of the feature [foc], with the same number of contrasts that are found in the baseline paradigm (see section 3.7).

That all six logical possibilities of φ-impoverishment and Ā-exponence are attested crosslinguistically suggests that φ-agreement is *always* Ā-sensitive, as codified in (23), above. The Ā-Sensitivity Uniformity Hypothesis forces variation in the distribution of anti-agreement completely into the morphological component. It holds that the syntax of agreement is uniform in both Ā- and non-Ā-contexts. What causes variation in whether or not a given argument triggers anti-agreement for a given instance of agreement is determined exclusively by variation in whether or not there is an applicable impoverishment rule for a given probe-goal pair.

I explore some consequences of the ASUH in chapter 4. First, I present data from Tundra Nenets and Abaza that show that DPs that do not undergo Ā-movement are nonetheless capable of triggering Ā-sensitivity effects. Tundra Nenets exhibits anti-agreement with true *wh*-in-situ, and Abaza exhibits anti-agreement triggered by variables bound by Ā-operators. Furthermore, I show that in the languages Dinka and Selayarese, although anti-agreement is linked to Ā-movement, the variation in which arguments and which Ā-dependencies trigger these effects cannot be explained structurally. In Dinka, syntactically identical Ā-dependencies differ as to whether they have a morphological effect on agreement. In Selayarese, there is no unique structural configuration that leads to anti-agreement. Instead, what is important for Selayarese, is the φ-probe that is affected by anti-agreement, T, interacting with [φ] and [Ā], and not the structural relationship between the Ā-moved DP and that head.

Importantly, in Selayarese, φ-probes on heads other than T are unaffected by the presence of Ā-features copied from their goal. This is the case with a φ-probe hosted on *v*. I argue that this distinction is derived by the fact that impoverishment rules can make reference to specific categories of head in their contextual restrictions. The φ-probe on *v* in Selayarese is unaffected by anti-agreement because there is simply no impoverishment rule that can target it in the language. I refer to variation in what types of heads are targeted for impoverishment as *probe-based variation.*

I explore probe-based variation more carefully in chapter 5, focusing on languages in which clauses may contain multiple φ-probes. I examine two types of cases. First, I examine the distribution of anti-agreement in languages where there are multiple φ-probes in a clause and these φ-probes always (or sometimes) target different arguments. I show that there is no systematic asymmetry in which heads are targeted for anti-agreement in such languages. I then discuss languages in which there are multiple φ-probes in a clause and those φ-probes target the same argument. Again, we see that there is no systematic gap in the distribution of which heads are targeted for impoverishment in these languages.

These facts lead me to conclude that the link between anti-agreement and movement is illusory. Because Ā-movement is derived by the presence of certain Ā-features on the moving DP, anti-agreement will most often coincide with Ā-movement. But there are places where this tendency comes apart. All that is necessary for the emergence of anti-agreement is the presence of an Ā-feature on a DP which triggers agreement.

The picture that emerges from these chapters is a theory of anti-/*wh*-agreement in which there is no disruption to syntactic agreement when the goal of agreement undergoes Ā-movement. Instead, morphological effects arise in this context because φ-probes are Ā-sensitive, copying back [φ] and [Ā] features from their goals, and the way the morphological component treats the specific combination of features [φ+Ā]. The division of labor between syntax and morphology in this theory of anti-agreement, and where variation is located, is summarized in figure 1.2.

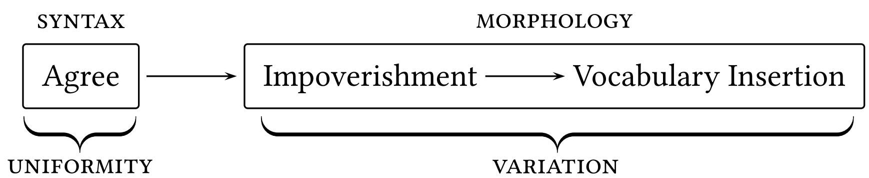


Figure 1.2: Loci of variation in the theory

While the explanatory 'action' of the theory is spread across two components of the grammar (Ā-sensitive φ-agreement in the syntax, φ-impoverishment/Ā-exponence in the morphology), the loci of crosslinguistic variation are in the morphological component. Variation is divided among two steps of the postsyntactic component. First, application of impoverishment to a [φ+Ā] bundle is variable. We have seen this both crosslinguistically and within the same language. There are several parameters along which the application of impoverishment varies.

(78) *Parameters governing the application of impoverishment*
   a. Whether or not impoverishment targets a particular node bearing a φ-probe.
   b. Whether or not there is a specific φ-feature that triggers the operation
   c. Whether or not a specific Ā-feature is needed.

All of these parameters are encoded via features in the theory proposed here. For example, parameter (78a) is encoded with categorial features. An impoverishment rule in one language might target nodes with [Agr], meaning that all φ-probes in that language are affected, while in another language, an impoverishment rule might only target T heads, meaning only agreement on T is affected by the presence of Ā-features. This derives the All φ-probes generalization.

Second, there is variation in the inventory of vocabulary items a language has at its disposal, and how these VIs will be utilized after impoverishment. For some languages, like Abaza, there will be a VI that realizes the Ā-feature that remains after impoverishment has taken place. In other languages, like Fiorentino, there will be no such morpheme, and a VI that already is used in the agreement paradigm will emerge. This derives the Impoverishment/Ā-exponence Independence generalization.

This theory of variation relies on tools needed independently in a postsyntactic model of morphology like DM. Clearly, all languages do not employ the same set of morphological operations and all languages do not have the same inventory of vocabulary items. Differences in these mechanisms are independently required of any theory of morphology. That the theory of anti-agreement developed in this dissertation does not require major revision of the theory is an argument in favor of my account over analyses which require additional syntactic mechanisms.

Chapter 2

Unifying Anti-Agreement and *Wh*-Agreement

2.1 Introduction

In this chapter, I present a unified theory of anti-agreement and *wh*-agreement in which the two phenomena are different surface instantiations of the same abstract process. The core proposal is that both effects are the result of a φ-probe agreeing with an goal that bears an Ā-feature. Specifically, I argue that when a φ-probe finds a goal with both an Ā-feature and φ-features, both sets of features are copied back to the probe.

(79) *Ā-sensitive φ-agreement*

$$[\ \ldots\ \underbrace{H_{[u\varphi]}\ \ldots\ DP_{[\varphi,\,\bar{A}]}}_{\varphi+\bar{A}}\ \ldots\ ]$$

In (79), a φ-probe on the head H encounters a DP. This goal bears both an Ā-feature and a set of φ-features, and both are copied to the probe during the course of Agree.

It is Ā-sensitive φ-agreement that prefigures the phenomena that have been referred to as 'anti-agreement' and '*wh*-agreement' in the literature. I argue that in the morphological component, partial or total *impoverishment* may apply to the head containing both φ- and Ā-features, deleting some or all of the φ-features. Impoverishment blocks insertion of an otherwise appropriate, more highly specified agreement exponent. I argue that the difference between anti-agreement and *wh*-agreement is located in the lexicon—whether or not a language has *wh*-agreement (that is, appearance of a special morpheme) or anti-agreement (that is, reduced agreement or the lack of agreement) under Ā-extraction comes down to the agreement vocabulary items that language makes use of. In fact, we will see languages in which the anti-agreement and *wh*-agreement coexist. For example, in Abaza, one marker that appears in Ā-contexts is best analyzed as a morphological default, while another morpheme that shows up in the same contexts is best analyzed as realizing an Ā-feature. Both, however, share systematic underspecification for φ-features. The impoverishment-centered theory captures the fact that both anti-agreement and *wh*-agreement involve a systematic retreat to an underspecified exponent in the Ā-context, while allowing for variation in the way this retreat to the underspecified is realized.

In the rest of the chapter, I develop the unified analysis of anti-agreement and *wh*-agreement through close examination of three languages that have featured prominently in the literature on *wh*-agreement and anti-agreement. In section 2.2, I discuss *wh*-agreement in Abaza. I show that Abaza has both true *wh*-agreement (a special morpheme that spells out [Ā]) as argued by O'Herin (2002) and default agreement in the context of Ā-features. I use this observation to motivate my impoverishment based theory. In section 2.3, I extend this analysis to anti-agreement in Tarifit (Berber). I show that the participle form in Tarifit includes a morpheme that spells out the Ā-feature of an extracted subject. Thus, in Abaza we have a canonical case of *wh*-agreement actually being in part anti-agreement, and in Tarifit we have a canonical case of anti-agreement being in part *wh*-agreement. This is expected if both patterns are the same underlying grammatical process, and therefore these languages support a unification of the two effects. Finally, in section 2.4, I extend my analysis to the northern Italian dialect Fiorentino, a language where agreement morphology in the Ā-extraction context is truly default, and not the overt realization of [Ā]. I show that the analysis of default agreement as resulting from φ-feature impoverishment is superior to existing analyses of Fiorentino in the literature.

2.2 *Wh*-agreement in Abaza

In this section, I show that the pattern of *wh*-agreement in Abaza (ISO: `abq`, Russia) provides strong evidence for a unified, morphological analysis of anti-agreement and *wh*-agreement. I first show in section 2.2.1 that Abaza exhibits two morphological patterns of Ā-sensitive φ-agreement; for one agreement paradigm, a special morpheme appears in Ā-contexts; for another agreement paradigm, a default appears. Superficially, then, Abaza has one form of Ā-sensitive φ-agreement that would traditionally be cast as *wh*-agreement and another form of Ā-sensitive agreement morphology that would be cast as anti-agreement. In the existing literature on Abaza, both markers are analyzed as overt *wh*-agreement (O'Herin 2002). I argue that these markers result from the same underlying phenomenon, namely φ-feature impoverishment in the context of Ā-features, but they are morphologically distinct in the sense that one spells out an Ā-feature and the other does not. In this way, I retain the insights of O'Herin's unified analysis of the two markers, while at the same time being able to extend my analysis to a larger group of languages. I present my analysis based on morphological impoverishment in section 2.2.2.

2.2.1 The distribution of *wh*-agreement

Verbs in Abaza display an ergative-absolutive agreement pattern. Agreement is for person, gender, and number. Agreement in declarative clauses with intransitive and transitive verbs is shown in (80).

(80) *Agreement in Abaza declarative clauses*

a. *Intransitive verb*
ʃʷara$_i$ ʃʷ$_i$-ʕʷəyd
2PL 2PL-run
'You(PL) run. (O'Herin 2002:64)

b. *Transitive verb*
pro$_i$ ***pro***$_k$ **ʃʷə**$_k$-**l**$_i$-bat'
3SG.F 2PL 2PL-3SG.F-see
'She saw you(PL)' (O'Herin 2002:66)

c. *Transitive verb*
pro$_i$ ***pro***$_k$ **y**$_k$-p-**s**$_i$-qəd
1SG 3SG.INAN 3SG.INAN-PFV-1SG-break
'I broke it' (O'Herin 2002:16)

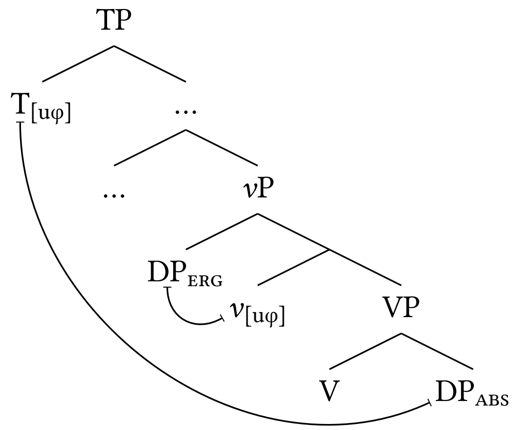
Intransitive subjects and transitive objects control one agreement paradigm, here exemplified by the 2PL prefix *ʃʷ-*[1] in (80a) and (80b), respectively; transitive subjects control a different paradigm, here exemplified by the 3SG.F prefix *l-* in (80b) and the 1SG prefix *s-* in (80c). In addition, absolutive is distinguished from ergative by position in the verb; the absolutive prefix is the first prefix in the verb word, while ergative agreement occurs close to the root. This can be seen clearly in (80c), where the two prefixes are separated by a tense-aspect prefix (here glossed PFV).[2]

Following O'Herin's (2002) analysis of agreement in Abaza, I assume that agreement prefixes spell out φ-probes on functional heads along the clausal spine. While O'Herin assumes these probes are hosted by dedicated Agr(eement) projection, I assume they are hosted by T (absolutive) and *v* (ergative).

1. The difference between *ʃʷ-* in (80a) and *ʃʷə-* in (80b) is the result of a regular morphophonological process in Abaza in which many agreement prefixes alternate between a form consisting of a single consonant and one consisting of a consonant and a schwa. See O'Herin (1992, 2002) for details.

2. The ergative agreement prefixes are also used to index possessors, complements of agreement postpositions, and applicative arguments. See O'Herin (2002) for discussion.

(81) *Agreement with T and v*



The lower φ-probe, located on *v*, agrees with the external argument in Spec-*v*P.[3] The higher φ-probe, on T, agrees with the next highest DP inside *v*P. Because ergative agreement is not present in intransitive clauses, I assume that only transitive *v* hosts a φ-probe.

I assume that heads bearing φ-probes (like T or *v* in Abaza) bear a feature that marks them as agreement heads. I will call this feature [Agr]. In other words, the features of T or *v* after agreement are not simply [T, φ] or [*v*, φ]. Instead, these heads will have the form in (82):

(82) *Feature content of T and v after Agree*

a. [T, φ, Agr]

b. [*v*, φ, Agr]

I take the [Agr] feature in (82) to be equivalent to the Agr-nodes that are assumed in some analyses of morphological agreement in DM, in the sense that the [Agr] feature corresponds to and takes on the role of postsyntactically inserted Agr-nodes in accounts that assume such theoretical devices. In those accounts, Agr-nodes bear the features expressed by agreement morphology (Halle and Marantz 1993; Kramer 2010; Norris 2014). By assuming that heads that inflect for agreement bear an [Agr] feature from the beginning, we do not need to invoke a postsyntactic process of structure insertion that the Agr-node theories require. At the same time, as I show below, this analysis allows us to capture syncretisms that are present across the Abaza agreement paradigms with a standard DM toolkit.[4]

3. See Coon (2017) for arguments that ergative agreement is low, derived by Spec-Head agreement with *v*.

4. Note that this analysis also leaves open the possibility that pure Agr-projections do exist in some languages. Such heads would simply be an [Agr] feature plus a φ-probe. I assume such a node in my analysis of the Bantu language Lubukusu (see section 3.4.3).

Each agreement paradigm includes a morpheme that indexes arguments bearing Ā-features: *y-* for absolutive agreement and *z-* for ergative agreement.[5] I illustrate these prefixes with *wh*-questions in (83) and (84), respectively.

(83) *Absolutive* wh-*agreement: y-*[6]

a. a-čʷwal **dzač'ʷəya** **yə**-ta-wa
DEF-sack what ABS.WH-in-PRS
'What is in the sack?' (O'Herin 2002:253)

b. Izmir *pro* **dzač'ʷəya** **yə**-r-bakʷaz
Izmir 3PL who ABS.WH-3PL-see.PL.PST
'Who did they see in Izmir?' (O'Herin 2002:252)

(84) *Ergative* wh-*agreement: z-*[7]

a. **dəzda** s-axčʲa **zə**-ɣəčʲ
who 1SG-money ERG.WH-steal
'Who stole my money?' (O'Herin 2002:252)

b. a-fačʲəʕʷ a-finǰʲan a-pnə **dəzda** y-na-**z**-axʷ
DEF-sugar DEF-cup 3SG.INAN-at who 3SG.INAN-PFV-ERG.WH-take
'Who took the sugar out of the cup?' (O'Herin 2002:252)

As can be seen in (83) and (84) the position of *wh*-phrases varies in Abaza. Descriptively, the order of subject, object, and verb is rigid when neither subject or object is a *wh*-phrase. When the subject is a *wh*-phrase, it must either be clause initial, (84a), or immediately precede the verb, (84b). Object *wh*-phrases occur immediately preverbally. Theoretically, O'Herin (2002) argues that *wh*-phrases may either stay in situ or move to a focus position below CP. For O'Herin, this focus position is right adjoined to a projection directly below CP. Combined with O'Herin's assumption that V undergoes head movement to a head-final CP, this yields the word order where the *wh*-phrase occupies a position directly to the left of the verb.

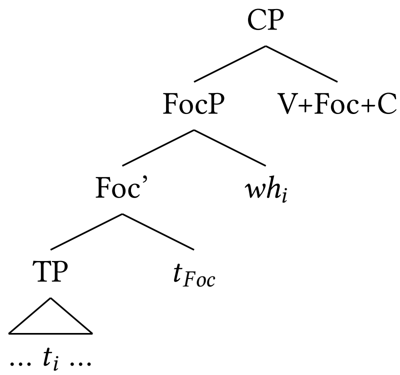
In more modern terms, we could assume that the position targeted for *wh*-movement is a right-hand specifier of a CP-level projection directly below the CP-level head that is targeted for head movement of V. This is shown in (85).

5. The distribution of *wh*-agreement in Abaza is similar other West Caucasian languages Abkhaz (Hewitt 1979a,b), Adyghe (Caponigro and Polinsky 2015; Ershova 2017), Kabardian (Colarusso 1992), and Ubykh (Fenwick 2011). See the cited works for discussion.

6. The *wh*-agreement prefixes *y-* and *z-* alternate between a form with a schwa and one without. This is the same pattern of allomorphy displayed by the other agreement prefixes; see fn 1.

7. The verb in (84a) lacks an overt absolutive agreement prefix. O'Herin (2002) notes that this is optional when the absolutive argument directly precedes the verb.

(85) *Position of ex situ* wh-*phrases in Abaza*



Above, I have represented the position that the *wh*-phrase moves to as a focus projection to maintain a parallel between O'Herin's original analysis and this alternative. However, for the analysis of anti-agreement that follows, the position that wh-phrases occupy in Abaza is not crucial. What is crucial is the presence of Ā-features on the questioned argument.

In addition to occurring in *wh*-questions, the prefixes *y*- and *z*- cross-reference the null operator found in relative clauses. An example is given for an absolutive relative head in (86):

(86) *Absolutive relative clause*

[$_{CP}$ **Op**$_i$ *pro* **yə**-awə-y-ʃʲtə-z] a-haqʷ-dəw$_i$
3SG.M ABS.WH-3SG.M-throw-PST DEF-stone-big

'the big rock that he threw' (O'Herin 2002:260)

O'Herin argues that relativization in Abaza involves Ā-movement of a null operator to a left-hand Spec-CP. Evidence for this comes from the fact that possessor relatives involve pied piping of the possessed DP to the left edge of the clause, as shown in (87).

(87) *Abaza possessor relatives involve leftward pide piping*

[$_{CP}$ [$_{DP}$ *Op*$_i$ **z**$_i$-phʷəs]$_k$ y-pa t_k yə$_k$-z-zak-wa]
POSS.WH-wife 3SG.M.POSS-son 3SG.M.ABS-3SG.M.ERG-hit-PTCP

a-qac'a$_i$
DEF-man

'the man whose wife his son hits' (O'Herin 2002:260)

I adopt O'Herin's analysis of relative clauses as involving Ā-movement to a left-hand CP-level specifier. Importantly, if this is on the right track, then there is a non-uniform syntax for Ā-dependencies in Abaza. While *wh*-phrases may stay in situ or raise to a right-hand specifier below CP, relative operators must raise to a CP-level specifier. Regardless of their syntax, however, both of these dependencies trigger *wh*-agreement. The analysis of anti-/*wh*-agreement that I develop in this chapter is able to retain the non-uniform analysis of Ā-dependencies in Abaza, while simultaneously accounting for this morphological uniformity.

Returning to the prefixes *y*- and *z*-, O'Herin (2002) refers to both as *wh*-agreement, since they occur in environments where Ā-operators control the relevant agreement slot. These prefixes fit neatly into the normal system of agreement in Abaza in that they occur in the exact same position as other agreement prefixes. I follow O'Herin's core intuition that *wh*-agreement in Abaza is the result of a φ-probe agreeing with a DP bearing the feature that drives Ā-movement, which I refer to here as [Ā]. The full paradigms are shown in tables 2.2 and 2.1, where I combine Ā-exponence with the rest of φ-paradigm.[8]

	1	2F	2M	3F	3M	3INAN	Ā
SG	*s*-	*b*-	*w*-	*l*-	*y*-	*a*-	$\boxed{z\text{-}}$
PL	*h*-	*ʃʷ*-	*ʃʷ*-	*r*-	*r*-	*r*-	$\boxed{z\text{-}}$

Table 2.1: Abaza ergative agreement (O'Herin 2002:55)

	1	2F	2M	3F	3M	3INAN	Ā
SG	*s*-	*b*-	*w*-	*d*-	*d*-	*y*-	*y*-
PL	*h*-	*ʃʷ*-	*ʃʷ*-	*y*-	*y*-	*y*-	*y*-

Table 2.2: Abaza absolutive agreement (O'Herin 2002:63)

O'Herin argues that both *z*- and *y*- spell out the feature [WH] (my [Ā]), and this is why he labels them both '*wh*-agreement'. But a closer look at the tables reveals that these prefixes differ in the number of features that they spell out. Ergative *wh*-agreement *z*- does not occur elsewhere in the paradigm; there is no other instance of *z*- for any other combination of person/number/gender values. To highlight this, I have boxed *z*- in table 2.1. There must be a feature that this prefix spells out which distinguishes it from the rest of the paradigm. I take this feature to be [Ā], as O'Herin does.

On the other hand, the absolutive *wh*-agreement prefix *y*- *does* occur elsewhere in the tables. In fact, it occurs in both the ergative and absolutive paradigms, and it always

8. Abaza has three genders: [MASCULINE], [FEMININE] and [INANIMATE]. I assume that these three genders are distinguished with two binary features, [±ANIM(ATE)] and [±FEM(ININE)]. I assume that inanimate nominals have the feature [−ANIM] while masculine and feminine nominals have the features [+ANIM,-FEM] and [+ANIM,+FEM] respectively.

occurs in 3rd person cells. This can be seen clearly from the shading in the tables 2.1 and 2.2. Therefore, I propose that the prefix *y-* is a morphological default—it spells out a head with an [Agr] feature for which there is no other vocabulary available. In other words, even when *y-* crossreferences an argument that bears an Ā-feature, it doesn't spell out that feature. Therefore, it is in fact better described as 'anti-agreement'—it is an underspecified agreement form that occurs in an Ā-context, but which does not actually realize the Ā-features of its controller.[9]

Thus, Abaza actually has two superficially different types of Ā-sensitive agreement—one that could be described as '*wh*-agreement' and one that could be described as 'anti-agreement'. But the distribution and conditioning environments of the morphemes in question don't differ at all. They both occur when the argument they cross-reference has Ā-features. All that separates them is the type of vocabulary item that surfaces in this context—one is drawn from the regular agreement paradigm (*y-*), one is a dedicated morpheme (*z-*). This suggests that the difference between the prefixes is very shallow; a unified analysis should capture this intuition. I turn now to capturing this intuition.

2.2.2 Analysis

I take as the starting place for the analysis of Abaza the observation that *wh*-agreement in Abaza is highly syncretic. *Wh*-agreement only expresses that a given φ-probe has agreed with an Ā-operator; no other φ-feature contrasts are expressed. Assuming syncretism arises from underspecification, we come to the conclusion that the vocabulary items *z-* and *y-* are highly underspecified. They spell out a very small number of features. I argue that there are three types of agreement vocabulary items (VIs) in Abaza, as shown in table 2.3:

VI type	Features spelled out
Full agreement	[φ, Agr]
	[φ, Agr, T]
	[φ, Agr, *v*]
Proper *Wh*-agreement (*z-*)	[Ā, Agr, *v*]
Elsewhere (*y-*)	[Agr]

Table 2.3: Types of Abaza agreement VIs

9. The alternative to positing that there is a single *y-* prefix which is a morphological default is to posit that there are two prefixes that have the form *y-*: one which spells out an Ā-feature, and one which does not. However, such an analysis misses the deep similarity between the uses of *y-*. For further discussion, see section 2.2.3.

Full agreement VIs spell out some combination of person, gender, and number features and one of the features [T], [*v*], or [Agr]. This captures that are some agreement prefixes that appear in only one of the paradigms (like *d-* 3SG.ANIM.ABS) and some that appear in both (such as *s-* 1SG). A prefix that occurs in both paradigms is spells out [φ] and [Agr]; a prefix that occurs only in the ergative paradigm spells out [φ], [Agr] and [*v*]; and a prefix that occurs only in the absolutive paradigm spells out [φ], [Agr] and [T]. The full inventory of VIs for Abaza agreement that I assume is shown in table 2.4, below.

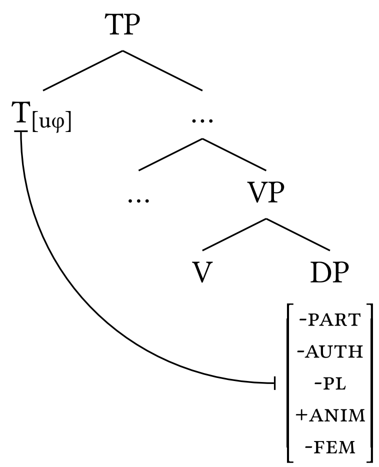
	VI		Features
Full agreement	s-	↔	[+AUTH, -PL, Agr]
	h-	↔	[+AUTH, +PL, Agr]
	b-	↔	[+PART, -AUTH, -PL, +FEM, Agr]
	w-	↔	[+PART, -AUTH, -PL, -FEM, Agr]
	ʃʷ-	↔	[+PART, -AUTH, +PL, Agr]
	d-	↔	[-PL, +ANIM, Agr, T]
	l-	↔	[-PL, +FEM, Agr, *v*]
	a-	↔	[-PL, -ANIM, Agr, *v*]
	r-	↔	[+PL, *v*]
Proper *Wh*-agreement	z-	↔	[Ā, Agr, *v*]
Elsewhere	y-	↔	[Agr]

Table 2.4: Abaza agreement VIs

Consider how this system of VIs correctly derives the fact that a 3rd person masculine singular argument is cross-referenced with the form *d-* in the absolutive, and *y-* in the ergative. First, we see the absolutive scenario in (88).

(88) *Derivation of absolutive agreement (3SG.M argument)*

a. *Agree in the Syntax*



b. *In the morphology*

i. Feature bundle on T: [-PL, +ANIM, -FEM, T, Agr]

ii. Vocabulary Insertion: $\boxed{\text{d-} \leftrightarrow \text{[-PL, +ANIM, Agr, T]}}$

~~y- ↔ [Agr]~~

In (88a), the φ-probe on T finds a 3rd person masculine singular internal argument and copies its features. In the morphological component, T has the feature bundle in (88b, i). At Vocabulary Insertion, (88b, ii), there are only two VIs that are eligible to be inserted, *d-* or *y-* (the default). The former prefix is the VI that is chosen because it is more specific than *y-*. Recall that Vocabulary Insertion is regulated by the Subset Principle and Specificity, repeated in (89) and (90), respectively.

(89) *Subset Principle* *(based on Keine 2010:8)*
A vocabulary item V is inserted into a terminal node N iff (a) and (b) hold:

a. The morphosyntactic features of V are a subset of the morphosyntactic features of N.

b. V is the most specific vocabulary item that satisfies (a).

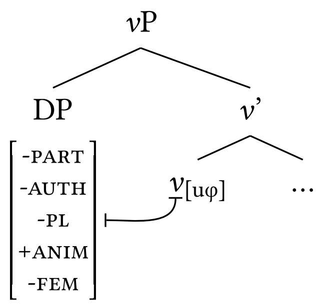
(90) *Specificity* *(based on Keine 2010:8)*
A vocabulary item V_1 is more specific than a vocabulary item V_2 iff V_1 contains more morphosyntactic features than V_2.

The features of both *d-* and *y-* are subsets of the features of T, and as such are eligible to be inserted. The prefix *y-*, however, is less specific than *d-*, and it cannot be inserted to realize T, (88b, i). Therefore, the chosen VI is *d-* as its features are a subset of (88b, i).

Next, consider what happens when an argument with the same features is the external argument of a transitive verb in (91).

(91) *Derivation of ergative agreement (3SG.M argument)*

a. *Agree in the Syntax*



b. *In the morphology*

i. Feature bundle on *v*: [-PART, -AUTH, -PL, +ANIM, -FEM, *v*, Agr]

ii. Vocabulary Insertion: $\boxed{\text{y-} \leftrightarrow \text{[Agr]}}$

In (91a), the φ-probe on *v* finds a 3rd person masculine singular external argument and copies its features. In the morphological component, *v* has the feature bundle in (91b, i). At Vocabulary Insertion, (91b, ii), there is only a single prefix eligible for insertion, *y-*, the default, and therefore the VI *y-* is inserted.

A prefix that is used in both paradigms spells out a set of φ-features and the feature [Agr]. This is the case for all 1st and 2nd person agreement prefixes, which are identical in both the ergative and absolutive agreement paradigms. An example is the 1st person singular prefix *s-*, which I assume has the feature specification in (92).

(92) *1st person singular agreement*

s- ↔ [+AUTH, -PL, Agr]

Because (92) is specified as spelling out [Agr], it can be inserted into either agreement head. Recall that I assume [Agr] is a feature that occurs on all heads bearing φ-probes.

Besides the full agreement VIs, there are two other agreement VIs, *z-* and *y-* (see table 2.3, above). The ergative *wh*-agreement prefix *z-* spells out the feature [Ā] and the categorial feature [*v*]. Because *z-* is specified with [*v*], it can only used to cross-reference an ergative argument with Ā-features. The prefix *y-* is the elsewhere morpheme in the paradigm. I assume that it spells out the feature [Agr] alone. Thus, it will only be inserted when there is no other eligible agreement prefix. This captures the fact that it occurs in both the ergative and absolutive agreement paradigms.

At this point, a question arises as to how an Ā-feature ends up in a feature bundle like [Ā, *v*] in the first place. I propose that this set of features arises because of the nature of φ-agreement, namely, that φ-probes are *Ā-sensitive*. Specifically, I argue that this is an option because of the way φ-probes interact, in the sense of Deal (2015, 2016b), with the features on a goal that they agree with. Recall that I assume that Ā-movement is feature driven—XPs that undergo Ā-movement bear some kind of Ā-feature (such as [FOC], [OP], [REL] or simply, [Ā]). As discussed in the introduction, I assume that Ā-features are hosted on D and both Ā-features and φ-features percolate to the DP level. This distribution of features will have the structure in (93):

(93) *DP bearing both Ā- and φ-features*

$$\text{DP}_{[\varphi,\ \bar{\text{A}}]} \to \text{D}_{[\varphi,\ \bar{\text{A}}]} \quad \ldots$$

To derive the fact that φ-probes end up with both [Ā] and [φ] in Abaza, I adopt the formulation of Agree developed by Deal (2015, 2016b). Deal argues that the features which are transferred to a probe by Agree need not be confined to those that cause the probe to stop searching. Specifically, she proposes that we must distinguish a probe's *interaction* condition(s) and *satisfaction* condition(s).

(94) *Interaction and Satisfaction in φ-agreement*

A probe H may interact with feature set F even if it may only be satisfied by feature set G, G⊆F.

a. **Interaction**: Probe H interacts with feature [f] by copying [f] to H.

b. **Satisfaction**: Probe H is satisfied by feature G if copying G to H makes H stop probing.
(adapted from Deal 2016b:3)

When a probe interacts with a feature but is not satisfied by that feature, it continues searching. Search only halts when probe's satisfaction condition is met. Deal's system allows for probes to get 'more than they bargain for' during the course of Agree, in that they may end up with a superset of the features they search for via interaction. Deal conjectures that there is no variation in interaction conditions for φ-agreement, and that variation is in satisfaction conditions only.

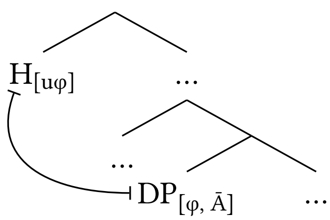
While Deal's discussion concerns only the set of φ-features (Φ), I assume that the interaction/satisfaction algorithm is a general property of Agree. Suppose that the set of φ-features (Φ) and the set of Ā-features (Ā) belong to a larger set of features, $\mathcal{F}$.

(95) $\mathcal{F} = \{\Phi, \bar{A}\}$

If there is no variation in interaction, then both φ-probes and Ā-probes both have the same interaction conditions: $\mathcal{F}$. Under this analysis, a 'φ-probe' is a probe that is satisfied by (some subset of) [φ] and a 'Ā-probe' is a probe that is satisfied by (some subset of) [Ā].

Consider what this means for when a φ-probe on a head H agrees with a DP that bears both φ-features and Ā-features, as shown in (96).

(96) *H interacts with [Ā] and [φ]*



The φ-probe on H searches in its c-command domain for features and finds the DP bearing [φ] and [Ā]. The probe will be able to interact with both of these features, and therefore, it copies back both sets of features to H. In other words, the ability for φ-probes to copy back Ā-features of their goals follows straightforwardly from the behavior of Agree that I have laid out above that is independently supported.

The idea that *wh*-agreement in Abaza is caused by a φ-probe agreeing with a goal bearing Ā-features has antecedents in O'Herin's (2002) analysis of the same pattern. O'Herin, like me, proposes that *wh*-agreement is the morphological manifestation of agreement with an Ā-feature (for him, [WH]). Unlike me, however, O'Herin proposes that [WH] is itself a φ-feature. Therefore, for O'Herin, *wh*-agreement is simply normal φ-agreement. I, like O'Herin, claim that Ā-features and φ-features are accessible to φ-probes because they are part of the same feature set. Under my approach, we can maintain the partition between φ-features and Ā-features, while in O'Herin's we must claim that [WH] and [φ] are really the same type of feature.

Given (96), a head that enters into an Agree relation with a *wh*-word or relative operator in Abaza will always have (at least) the features in (97).

(97) *Form of an Abaza head hosting a φ-probe after Agree with operator*

$$[\ \varphi, \bar{A}, \textsc{Agr}, \left\{ \begin{array}{c} v \\ \mathrm{T} \end{array} \right\}\ ]$$

However, if (97) is the form of a φ-probe at the point of Vocabulary Insertion, the prefix *z*- should never be inserted. This is because the full agreement VIs from table 3 will always realize more features of the feature bundle in (97) than *z*-, and by the second clause of the Subset Principle, (89b), the VI with more features will be inserted. This is also the case for the prefix *y-* when the Ā-marked argument has features that can be spelled out by a full agreement VI (such as *d-* in example (88), above).

I propose that *z-* and *y-* can be inserted in the first place because of the operation *impoverishment*, a postsyntactic operation that deletes features before Vocabulary Insertion takes place (Bonet 1991; Noyer 1992, 1997; Halle and Marantz 1993; Keine 2010). By deleting features from a terminal nodes, impoverishment may block the insertion of a VI into that node because the VI's features are no longer a subset of that node. Thus, impoverishment systematically leads to the insertion of underspecified morphemes in certain environments.

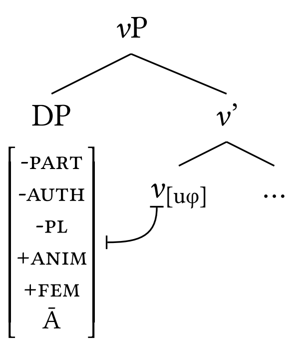
Specifically, I argue that the impoverishment rule in (98) applies prior to Vocabulary Insertion in Abaza.

(98) *Abaza φ-feature impoverishment*
[φ] → Ø / [__, Ā, Agr]

The rule in (98) states that all φ-features are deleted from a feature bundle that also contains an Ā-feature (such as the one in 97, above). The rule is limited to probes by reference to the feature [Agr]. It blocks insertion of an otherwise appropriate, more highly specified full agreement VI. Because such VIs have a specification for person, gender, and number features (see table 2.3, above) when these features are deleted by impoverishment from a head, the feature specification of a full agreement VI is no longer a subset of the remaining features on the head ([Ā], [Agr] and the categorial feature of the affected head). Consider how this rule derives *wh*-agreement when *v* has Agreed with a 3rd person feminine singular argument with an Ā-feature.

(99) *Derivation of ergative* wh-*agreement*

a. *Agree in the Syntax*



b. *In the morphology*

i. Feature bundle on *v*: [-PART, -AUTH, -PL, +ANIM, +FEM, Ā, *v*, Agr]

ii. Impoverishment: [-PART, -AUTH, -PL, +ANIM, +FEM, Ā, *v*, Agr] → [Ā, *v*, Agr]

iii. Vocabulary Insertion: $\boxed{\text{z-} \leftrightarrow [\bar{\text{A}}, \text{Agr}, v]}$

~~y- ↔ [Agr]~~

(~~l- ↔ [-PL, +FEM, Agr, *v*]~~)

In the syntax, *v* searches its c-command domain and finds both [Ā] and [-PART, -AUTH, -PL, +ANIM, +FEM] on D, and interacts with each in turn, copying back [Ā] and the φ-feature set. In the morphology, the initial feature bundle on *v* in (99b, i) undergoes impoverishment. This reduces the bundle to [Ā, *v*, Agr], as shown in the (99b, ii). During Vocabulary Insertion, (99b, iii), there are two VIs that are eligible for insertion into the impoverished feature bundle, *z-* and *y-*. Full agreement, *l-* is ruled out by (89a)—the features of *l-* are not a subset of [Ā, *v*, Agr] (it is included in parentheses here for reference). The choice between the two underspecified VIs, *z-* and *y-*, comes down to the second clause of the Subset Principle, (89b). Both prefixes spell out a subset of [Ā, Agr, *v*], but *z-* spells out a larger subset than *y-*. Therefore, *z-* is inserted.

Absolutive '*wh*-agreement' arises when *y-* is the only VI eligible for insertion after impoverishment. To see how this works, consider a scenario identical to the one given in (99) with the minimal difference that the agreement head is T.

(100) *Derivation of absolutive* 'wh-*agreement'*

a. Feature bundle on T: [-PART, -AUTH, -PL, +ANIM, +FEM, Ā, T, Agr]

b. Impoverishment: [-PART, -AUTH, -PL, +ANIM, +FEM, Ā, T, Agr] → [Ā, T, Agr]

c. Vocabulary Insertion: (~~z- ↔ [Ā, Agr, *v*]~~)

$\boxed{\text{y-} \leftrightarrow [\text{Agr}]}$

(~~d- ↔ [-PL, +ANIM, Agr, T]~~)

In (100c), the only VI eligible for insertion is *y-*. The ergative *wh*-agreement prefix *z-* and the full agreement prefix *d-* are both ruled out by the first clause of the Subset Principle, (89a)—neither is a subset of the features on T. They are included in parentheses here for reference.

2.2.3 Discussion

The core intuition of the analysis developed in the previous section is that there is a deep and important connection between underspecification, impoverishment, and the morphology that appears in the context of Ā-movement. We have seen that Abaza has two agreement morphemes that index an argument with Ā-features, *z-* and *y-*. I have argued above that both of these morphemes are highly underspecified. While *z-* spells out an Ā-feature, *y-* is a default agreement morpheme that surfaces throughout the paradigm. These prefixes are able to surface in Ā-contexts in the first place because [Ā] triggers impoverishment of φ-features which would otherwise block insertion of the underspecified exponents. Full morphological agreement never surfaces in the context of Ā-movement simply because the φ-features are not present to be spelled out.

Consider an alternative account that eschews impoverishment but maintains the idea that both *z-* and *y-* are highly underspecified. Recall that the Subset Principle has two clauses. The first clause determines which VIs are eligible to be inserted into a given terminal node; the second clause states that when multiple VIs can potentially be inserted into a single terminal node, the more specific VI wins.

(101) *Subset Principle* [=(89)]
A vocabulary item V is inserted into a terminal node N iff (a) and (b) hold:
a. The morphosyntactic features of V are a subset of the morphosyntactic features of N.
b. V is the most specific vocabulary item that satisfies (a).

The definition of specificity that I relied on above is repeated in (102); it states that the VI that realizes the most features of a given feature bundle is inserted.

(102) *Specificity* [=(90)]
A vocabulary item V_1 is more specific than a vocabulary item V_2 iff V_1 contains more morphosyntactic features than V_2.

However, specificity of vocabulary items can in principle be computed in a different manner. One alternative is rely on a feature ranking that dictates which features win out when there is a conflict. An implementation of this idea from Müller (2004) is given in (103) on the next page.

(103) *Specificity* (Müller 2004:9)
A vocabulary item V_i is more specific than a vocabulary item V_j iff there is a class of features $\mathcal{F}$ such that (i) and (ii) hold.

i. V_i bears more features belonging to $\mathcal{F}$ than V_j does.
ii. There is no higher-ranked class of features $\mathcal{F}'$ such that V_i and V_j have a different number of features in $\mathcal{F}'$.

Returning to the Abaza paradigm, suppose that Ā-features are more highly ranked than φ-features for determining specificity of a VI (Ā> φ). Such a ranking would allow us to derive the insertion of the ergative *wh*-agreement prefix *z-* without recourse to impoverishment. Consider why by comparing *z-* to the 3rd person feminine singular ergative agreement prefix *l-*.

(104) *Ergative* wh-*agreement vs. full agreement*

a. z- ↔ [Ā, Agr, *v*]
b. l- ↔ [-PL, +FEM, Agr, *v*]

Given the ranking [Ā] > [φ] for determining specificity by (103), the prefix *z-* will win over *l-*. This is because, even though *l-* spells out more individual features than *z-*, the prefix *z-* spells out a more highly ranked feature, [Ā]. Thus, the metric of specificity proposed by Müller derives the insertion of *z-* without relying on impoverishment.

Importantly, however, this way of determining specificity cannot derive the fact that *y-* surfaces in Ā-contexts in the same manner while maintaining that *y-* does not spell out [Ā]. To see why, compare the VI that I have been assuming for *y-* to the 3rd person singular animate absolutive prefix *d-*.

(105) *Absolutive* wh-*agreement vs. full agreement*

a. y- ↔ [Agr]
b. d- ↔ [-PL, +ANIM, Agr, T]

Given the definition of specificity in (103), the prefix *d-* should always count as more specific than *y-*. This is because *d-* simply realizes more features than *y-* and *y-* realizes no features that are more highly ranked than *l-*. Therefore, without impoverishment, we would be forced to assume that the *y-* appearing in *wh*-agreement contexts *does* actually spell out the feature [Ā]. This alternative is shown in (105′).

(105′) *Absolutive* wh-*agreement vs. full agreement*

a. y- ↔ [Ā, Agr, T]
b. d- ↔ [-PL, +ANIM, Agr, T]

Thus, an analysis of *wh*-agreement in Abaza based on ranked specificity requires there to be two *y*- prefixes—one that occurs in *wh*-agreement contexts, and one that appears elsewhere in the paradigm. This analysis fails to capture the generalization that *y*- occurs in Ā-movement contexts *and* in a wide variety of other contexts within the paradigm. Under a ranked specificity analysis, this is a mere coincidence.

On the other hand, the impoverishment analysis captures the systematic relationship between the underspecification of *y*- and its appearance in the Ā-movement context. It is no coincidence that the default agreement morpheme surfaces in these contexts. After impoverishment, there are no φ-features to be realized, and therefore default agreement must surface. When there is a morpheme that realizes the Ā-feature left over after impoverishment, and that exponent can be inserted into the relevant head, it will be spelled out over *y*-. This is what happens when *v* agrees with a phrase bearing [Ā]. Impoverishment ensures that there are no φ-features to be spelled out, and because *z*- realizes [Ā] and [*v*], it is inserted.

In the next section, I show that the analysis just developed for Abaza can be extended to the pattern of Ā-sensitive agreement in Tarifit Berber. We will see that like Abaza, Tarifit exhibits both default agreement and *wh*-exponence in the Ā-context.

2.3 Anti-agreement in Tarifit

Since Ouhalla's (1993) seminal article on anti-agreement, the pattern of Ā-sensitive agreement found in Berber languages has been considered a canonical instance of anti-agreement. In this section, I focus on anti-agreement in Tarifit, (ISO: `rif`, Morocco), the Berber language that Ouhalla originally examined. I argue that the same process that derives *wh*-agreement in Abaza derives anti-agreement in Tarifit. A φ-probe agrees with a subject bearing an Ā-feature and this triggers total impoverishment of the φ-features in the morphology.

I show that the invariant verb form that occurs in anti-agreement contexts in Berber languages, traditionally referred to as the 'participle' in the Berber literature, is composed of a default agreeing form *and* morphology that realizes the Ā-features involved in impoverishment. Essentially, the participle is simultaneously both an anti-agreement and *wh*-agreement form. As far as I am aware, my account is the first one in the literature on Berber anti-agreement to explicitly argue that the participle involves *wh*-agreement morphology.

2.3.1 The distribution of anti-agreement

Verbs in Tarifit agree with their subject in person, gender, and number, as shown in (106a). If the subject of has Ā-features, the verb must be in a non-agreeing form, labeled the 'participle' form, and full agreement is impossible, (106b).

(106) *Tarifit anti-agreement*

a. *Agreement in VSO declarative*[10]

th-zra	**Nunja**	aqzin
3sg.f-see.pfv	Nunja	dog

'Nunja[11] saw the dog.' (El Hankari 2010:138)

b. *Anti-agreement with subject* wh-*question*

man tamghart$_i$	ay	**y-zri-n**	/	***t**-zra	—$_i$	Mohand
which woman	C	3sg.m-see.ptcp	/	3sg.f-see-pfv		Mohand

Intended: 'Which woman saw Mohand?' (Ouhalla 1993:479)

Anti-agreement is a general property of subject Ā-movement in Tarifit. It is also found in subject relative clauses and subject clefts. These are shown in (107a) and (107b), respectively.

(107) *Anti-agreement in relative clauses and clefts*

a. *Subject relative clause*

tamghart$_i$	nni	**y-zri-n**	—$_i$	Mohand
woman	C	3sg.m-see.ptcp		Mohand

'the woman who saw Mohand' (Ouhalla 1993:479)

b. *Subject cleft*

tamghart-a$_i$	ay	**y-zri-n**	—$_i$	Mohand
woman-dem	C	3sg.m-see.ptcp		Mohand

'It's this woman that saw Mohand.' (Ouhalla 1993:479)

The participle is found regardless of the φ-features of the Ā-subject. In (108), the extracted subject is 2nd person, masculine, and singular, and the verb appears in the same invariant participle form as in (106b) and (107), where the extracted subjects are 3rd person.

(108) *Anti-agreement suppresses person agreement*

a. *Anti-agreement*

shek$_i$	ay	**i-uggur-n**	—$_i$
you.sg.m	C	3sg.m-leave-ptcp	

'You are the one who left.' (Ouhalla 2005a:675)

11. The difference in agreement prefixes in (106a) and (106b) is due to orthographic differences between Ouhalla (1993) and El Hankari (2010).

11. Nunja is a Tarifit feminine proper name (El Hankari 2010).

b. *Full agreement*

***shek**$_i$	ay	**t-ggur-t**	—$_i$
you.SG.M	C	2M-leave-2SG.M	

Intended: 'You are the one who left.' (Ouhalla 2005a:675)

As can be seen from the examples above, the participle is composed of a prefix *y-/i-* and a suffix *-n*.[12] The full Tarifit φ-agreement paradigm is shown in table 2.5, below.[13]

	SG	PL
1	V-x	n-V
2M	θ-V-ð	θ-V-m
2F	θ-V-ð	θ-V-nt
3M	i-V	V-n
3F	θ-V	V-nt

Table 2.5: Tarifit φ-agreement (Elouazizi 2012:37)

The prefix *i-* found in participles is morphologically identical to the prefix *i-* found in the 3rd person masculine singular cell of the normal φ-agreement paradigm. I return to this observation below.

The basic word order in Tarifit is VSO. There is a general agreement in the Berber literature that verb initial word order is derived by verb movement to a position higher than the subject (Omari 2001; Ouali 2011; Ouhalla 1988, 2005b). In his work on Tamazight (ISO: `sjs`, Morocco), Ouali (2011) argues for the following clause structure in (109):

(109) *Berber Clause Structure* (Adapted from Ouali 2011:74)
$[_{\text{CP}}$ C $[_{\text{TP}}$ T $[_{\text{AspP}}$ Asp $[_{v\text{P}}$ DP_{SBJ} v $[_{\text{VP}}$ V DP_{OBJ}]]]]]

Ouali argues that the verb can raise to either Asp or T, but that it always raises at least to Asp. Evidence for this analysis comes from the interaction of overt tense particles that appear in T and the position of the verb in relation to a set of object clitics. When an overt tense particle occupies T, the verb follows object clitics as in (110a). When there is no overt tense particle in T, the verb precedes the clitics, as in (110b). Ouali argues that in the former case, the verb is in Asp, whereas in the latter case the verb has raised to T.

12. The difference between orthographic *y-* and *i-* in participles is morphophonological and not critical.
13. In table 2.5, 'V' stands for the verb stem.

(110) *Variation in clitic placement in Tamazight*

a. *T > Clitics > V (V in Asp)*

da=**as**=**t** wʃəx *pro*
FUT=3SG.M.DAT=3SG.ACC give.AOR.1SG 1SG
'I will give it to him.' (Ouali 2011:106)

b. *V > Clitics (V in T)*

wʃix=**as**=**t** *pro*
give.PFV.1SG=3SG.M.DAT=3SG.ACC 1SG
'I gave it to him.' (Ouali 2011:106)

The same arguments extend to Tarifit word order, as seen in (111).[14]

(111) *Variation in clitic placement in Tarifit*

a. *T > Clitics > V (V in Asp)*

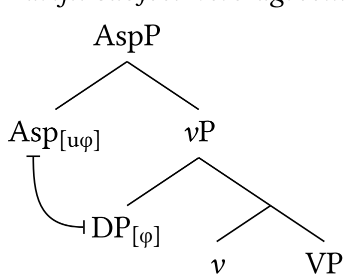
ath=**thnd** th-khsi *pro*
FUT=3PL.F.ACC 3SG.F-take 3SG.F
'She will take them.' (El Hankari 2010:182)

b. *V > Clitics (V in T)*

th-zri=**th** Nunja
3SG.F-give.PFV=3SG.M.ACC Nunja
'Nunja saw him.' (El Hankari 2010:138)

Crucially, in both Tamazight and Tarifit, the verb bears subject φ-agreement regardless of whether it has raised to Asp or T. I take this to indicate that the φ-probe responsible for subject-verb agreement is located on Asp, not on T as assumed elsewhere in the Berber literature (El Hankari 2010; Ouali 2011), as this explains why the verb still bears agreement when it has only moved to Asp. This analysis of Tarifit φ-agreement is shown in (112).

(112) *Tarifit subject-verb agreement (without V-to-Asp)*



14. Example (111) uses the orthography for Tarifit found in El Hankari (2010).

As I did for *v* and T in Abaza, I assume that the head Asp also includes the feature [Agr]. Therefore, after Agree, the content of Asp will be the following:

(113) *Feature content of Asp after Agree*
[φ, Agr, Asp]

With these assumptions about subject agreement in place, I turn to my analysis of anti-agreement in Tarifit.

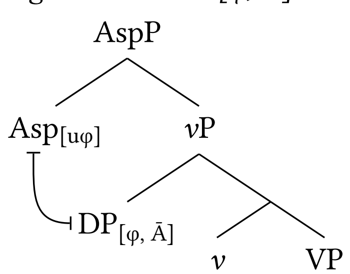
2.3.2 Analysis

As shown above, anti-agreement in Tarifit manifests as an invariant verb form known as the participle. The participle is composed of the verb root, a prefix *i-* and a suffix *-n*.[15] Ouhalla (1993) does not closely consider the morphology of the participle and treats *i-* and *-n* as a single discontinuous morpheme that is found in anti-agreement contexts.

Although its (traditional) name suggest otherwise, the verbal form labeled the 'participle' in the Berber literature is found *only* when the subject has been extracted (Kossmann 2003). There is no evidence that participles in Berber are a hybrid nominal/verbal category as has been suggested for forms labeled with the term in other languages (cf. Doron and Reintges 2007; Siloni 1995).

I suggest that the present theory of Ā-sensitive agreement provides an insight into both the distribution and morphology of the participle. With regards to its distribution, the participle surfaces in the same contexts that *wh*-agreement appears in in Abaza. Namely, the participle occurs only when the subject bears Ā-features. When this is the case, φ-probe on Asp agrees with a DP that bears both [Ā] and [φ], both as shown in (114).

(114) *Agreement with [φ, Ā] on subject DP in Tarifit*



When the φ-probe on Asp encounters a DP goal with [φ] and [Ā], it will interact with both these feature sets and copy them back. Probing will then be halted.

15. In all Berber languages, the participle is marked by a suffix containing /n/, though the exact form of the suffix varies across the family (Drouin 1996; Kossmann 2003). We will also see in section 3.7 and chapter 3 that Berber languages vary on the number of φ-features the participle can express.

With regards to the morphology of the participle, I propose that the same impoverishment rule, (115), that is active in Abaza is active in Tarifit.

(115) *Tarifit Berber φ-feature impoverishment*
$[\varphi] \rightarrow \emptyset$ / [__, Ā, Agr]

Like its Abaza counterpart, this impoverishment rule deletes φ-features from a feature bundle on a head bearing the feature [Agr] when that feature bundle also contains an Ā-feature.

I argue that the participle form is actually composed of two independent morphemes. The first, *i-*, is identical to the 3rd person masculine singular subject agreement prefix (see table 2.5, above) and is a default agreement morpheme The second, *-n*, realizes the Ā-feature that triggers impoverishment.

The prefix *i-* is identical to the 3rd person masculine singular prefix (see 2.5 above). Taking this identity seriously, I propose that the these two instances of *i-* are the same and that it is a default, elsewhere morpheme that is inserted whenever no other agreement morpheme is appropriate. Specifically, I assume it has a minimal morphosyntactic feature specification of [Agr], shown in (116).

(116) *Tarifit default agreement*
i- ↔ [Agr]

Notice that this is the exact same feature specification for the Abaza default agreement marker *y-*. Like in Abaza, there is a deep connection between the default agreement morphology and the morphology that surfaces in Ā-movement contexts in Tarifit. In both languages, a default morpheme emerges because φ-features have been impoverished from a [φ, Ā] feature bundle.

Regarding the suffix *-n* found in participles, I propose that it is the overt realization of the Ā-feature left on Asp after impoverishment. Evidence that this suffix is separable from the prefix *i-* comes from the fact that the aspectual form of the verb conditions whether or not this suffix appears. According to Drouin (1996:255), the aorist participle in Tarifit is composed of *just* the default agreement prefix *i-* and lacks the participle suffix *-n*, whereas imperfective and perfective participles have the suffix. Specifically, I propose the following VI for the participle suffix.

(117) *Tarifit Ā-exponence*
$$\text{-n} \leftrightarrow [\bar{\text{A}}] \text{ / } [\_\_, \left\{ \begin{array}{c} \textsc{pfv} \\ \textsc{ipfv} \end{array} \right\}]$$

The VI in (117) realizes an Ā-feature when it is in the context of certain aspectual features, which I have labeled [PFV] and [IPFV] here. This analysis captures the fact that the participle form is only possible when the subject bears Ā-feature, i.e. in subject extraction contexts.

Stepping back, this analysis of Tarifit participle morphology provides more evidence that anti-agreement and *wh*-agreement spring from the same basic source. Both Abaza and Tarifit employ default agreement morphology found elsewhere in the agreement paradigm and morphology specific to Ā-extraction contexts to index agreement controls with Ā-features, albeit in different ways in the two languages. In Abaza, different parts of the paradigm make use of different morphological strategies. In Tarifit, default agreement morphology and *wh*-agreement exist within the same form.

2.3.3 The subject-object asymmetry in Tarifit

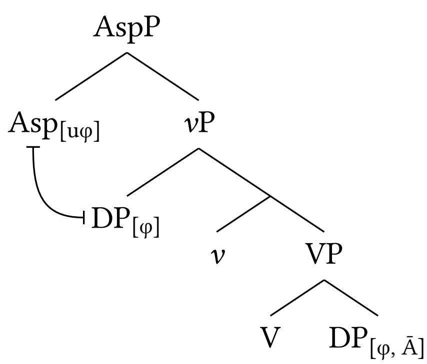
In Tarifit, and Berber languages more generally, only subject extraction triggers anti-agreement. Non-subject extraction does not trigger the suppression of subject agreement. As seen in (118), the verb agrees fully with the subject when an object has been extracted.

(118) *Object extraction does not trigger anti-agreement*

min$_i$ **th**-sha **Nunja** —$_i$
what 3SG.F-eat.PFV Nunja
'What did Nunja eat?' (El Hankari 2010:147)

This is completely expected under the current analysis, given that the verb agrees with the subject and not the object. This is because impoverishment, and therefore anti-agreement, will only occur when the φ-probe on Asp has agreed with a DP with [Ā], resulting in Asp having both [Ā] and [φ]. When an object is extracted, the φ-probe on Asp will find a normal DP in subject position in Spec-*v*P, and no Ā-feature will end up on the probe. This is shown in (119).

(119) *Agreement in object extraction contexts*



In (119), the Ā-feature on the object DP is inaccessible because the φ-probe on Asp is satisfied when it finds [φ] on the external argument and probing halts (see 94b, above).[16]

Stepping back, we see that there are two crucial preconditions for triggering anti-/*wh*-agreement. First, the grammatical function of the phrase bearing Ā-features must be one that generally controls agreement in the language in question. Second, the agreement controller for the affected probe must actually have Ā-features. Recall that this is the ALL φ-PROBES GENERALIZATION, given in (120).

(120) *All φ-probes generalization*
Crosslinguistically, any XP that triggers φ-agreement is in principle be capable of triggering anti-agreement on any φ-probe that it interacts with.

In other words, the configuration in (121) is required to trigger Ā-sensitive agreement.

(121) *Ā-sensitive φ-agreement.*
$[\ \ldots\ \mathrm{H}_{[\mathrm{u}\varphi]}\ \ldots\ \mathrm{DP}_{[\varphi,\ \bar{\mathrm{A}}]}\ \ldots\ ]$
φ+Ā

Importantly, (121) derives entirely from the syntax of Agree assumed here. We see robust evidence for this in both Tarifit and Abaza—the distribution of Ā-sensitive φ-agreement in Berber and Abaza is a consequence of where φ-agreement independently applies in each language. In Tarifit, object extraction does not trigger anti-agreement because an object does not control subject agreement in the language; it never enters into an Agree relationship with the φ-probe on Asp. In Abaza, all arguments with Ā-features trigger anti-agreement, but only the φ-probe that they agree with is affected by their extraction. For instance, object extraction triggers absolutive *wh*-agreement, but never triggers ergative *wh*-agreement. This is expected because objects do not interact with the φ-probe that derives ergative agreement.

In the next section, I examine anti-agreement in Fiorentino, a northern Italian dialect. Fiorentino is a language in which anti-agreement manifests as default agreement without the overt realization of Ā-features. I show how the theory I have developed for Tarifit and Abaza extends to this sort of language. In addition, Fiorentino is interesting in that multiple heads are affected by anti-agreement when the subject is extracted, unlike in Tarifit and Abaza, where only a single head is affected when a given argument is extracted.

16. It is generally assumed that Spec-*v*P is a target for intermediate Ā-movement (Chomsky 2000, 2001; Legate 2003; van Urk and Richards 2015). Crucially, I must assume that the object DP has not moved to the edge of *v*P at the time when Asp probes in (119). Otherwise, it is possible that the φ-probe on Asp could find the Ā-feature on the object DP in an outer Spec-*v*P, yielding anti-agreement.

2.4 Anti-agreement in Fiorentino

Since Ouhalla's (1993) original paper, anti-agreement in the northern Italian dialects of Fiorentino and Trentino has become a widely cited example of the effect. In this section, I focus on anti-agreement in the dialect of Fiorentino, though where illustrative I also use Trentino examples. All that is said of Fiorentino in this section also holds of Trentino, unless otherwise noted.

In normal declarative clauses, Fiorentino is SVO. Like other northern Italian vernaculars, the language has both subject-verb agreement and a set of preverbal subject clitics. Verbal agreement indexes person and number. Subject clitics index person, gender, and number.[17]

(122) *Basic agreement in Fiorentino* (Brandi and Cordin 1989:113)

a. tu parl-i
2SG speak-2SG.PRS
'You speak.'

b. e parl-a
3SG.M speak-3SG.PRS
'He speaks.'

c. Mario e parl-a
Mario 3SG.M speak-3SG.PRS
'Mario speaks.'

Subject clitics may cooccur with a full preverbal subject, as in (122c), or may appear on their own with a null subject, as in (122a) and (122b). Table 2.6 presents both subject clitics and subject-verb agreement for the verb 'speak' together.

	SG		PL	
1	(e)	parl-o	si	parl-a
2	tu	parl-i	vu	parl-ate
3M	e	parl-a	e	parl-ano
3F	la	parl-a	le	parl-ano

Table 2.6: Fiorentino φ-agreement (Brandi and Cordin 1989:113)

17. These subject clitics are rendered as independent words in examples in the sources consulted here (Brandi and Cordin 1989; Suñer 1992; Mereu 1999).

There are two important properties of the clitic that occurs in the 3rd person masculine singular slot in the table above. First, the clitic has two forms: *e* and *gli/gl'*. The *gli/gl'* form of the clitic occurs before vowels and consonant clusters beginning in /s/, while *e* occurs elsewhere:

(123) *Forms of the 3SG.M subject clitic* (Suñer 1992:644, fn 5)

a. *Before an /s/ cluster* → gli

gli	scrive
3SG.M	write.3SG.PRS

'He writes.'

b. *Before a vowel* → gl'

gl'	è	partito
3SG.M	be.3SG	left

'He has left.'

c. *Elsewhere* → e

e	parla
3SG.M	speak.3SG.PRS

'He speaks.'

Second, the same clitic occurs in sentences with expletive subjects, such as the impersonal passive in (124).

(124) *Impersonal passive*[18]

Gl'	é	stato	trovato	una	borsa
3SG.M	be.3SG	PASS.PTCP	found	a	bag

'There was found a bag.' (Brandi and Cordin 1989:137)

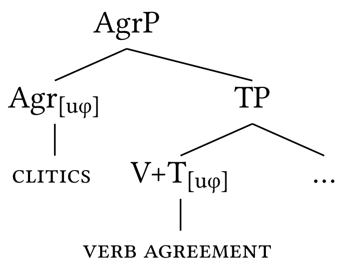
Authors differ on what they call the clitic in (124). Brandi and Cordin (1989) refer to it as the 'neutral impersonal subject clitic', while Mereu (1999) and Suñer (1992) refer to it as a 'neuter' clitic. However, as Suñer (1992:fn. 5) notes, the morphophonological behavior of the clitic *gl'/gle/e* strongly suggests that they are in fact the same morpheme. Following Suñer and Brandi and Cordin (1981), this is the analysis that I adopt—*e/gl(i)* is the default form, that is the most underspecified form, in the subject clitic paradigm.

Northern Italian subject clitics have been subject to extensive research (see Poletto 2000 for an overview). With regards to the syntax of subject clitics, I follow and develop a line of thought found in Rizzi (1986), Brandi and Cordin (1989) and Poletto (2000) that

18. As far as I am aware, the clitic found in impersonal passives like (124) exhibits the same allomorphy described by Suñer (1992) and shown in (123).

analyzes subject clitics as realizing a functional head that is merged above the head that hosts verbal agreement morphology, as shown in (125).

(125) *Fiorentino φ-probes*



The φ-probes on Agr and T search into their c-command domains and find the subject DP lower in the structure. After Agree with the subject, the heads Agr and T will have the following form:

(126) *Feature content of Fiorentino Agr and T after Agree*

a. [φ, Agr]

b. [T, φ, Agr]

Recall that I assume that heads that bear probes also carry an [Agr] feature. In addition to being carried by other heads in the clausal spine, I propose that an [Agr] feature may itself be merged as a head in the clausal spine. This is the equivalent of a pure Agr-projection.

When the subject is preverbal, I assume that it raises to Spec-AgrP, deriving the fact that it precedes both subject clitics and the verb.[19] In addition to preverbal subjects, Fiorentino allows for free subject-verb inversion. As shown in (127), agreement with a postverbal subject differs from agreement with a preverbal subject. Specifically, the finite verb is in a fixed 3rd person singular form and the expected subject clitic is replaced by the default clitic *e/gl(i)*.[20]

(127) *Postverbal subjects trigger default agreement*

a. gl' è venuto la Maria
3SG.M be.3SG come.PTCP the Maria
'Maria has come' (Brandi and Cordin 1989:121)

19. I do not take a position on what drives this movement. It could be that Agr can be imbued with an optional EPP feature that forces subject raising.

20. Throughout this section, I gloss *e/gl(i)* 3SG.M.

b.

glì/*le	ha/*hanno	telefonato	delle	ragazze
3SG.M/3PL.F	have.3SG/have.3PL	phone.PTCP	some	girls

‘Some girls have telephoned.’ (Brandi and Cordin 1989:122)

Brandi and Cordin (1989) argue that the lack of verbal agreement in (127) is due to the fact that equivalent of Spec-AgrP (their Spec-INFL) is occupied by an expletive *pro* which allows the allows the subject to remain low inside VP. Under their analysis, the expletive controls agreement on both the verb and the subject clitic, and this accounts for both default verb agreement and the presence of the default clitic.

The same default agreement pattern is found in subject *wh*-questions, subject restrictive relative clauses, and subject topicalization. As seen in (128)–(130), full agreement with the subject is ungrammatical. In each pair, the (a) example has the default agreement pattern, while the (b) example has full agreement.

(128) *Subject* wh-*questions trigger default agreement*

a.

Quante	ragazze	gli	ha	parlato	con	te
how.many	girls	3SG.M	have.3SG	spoken	with	you

‘How many girls have spoken to you?’ (Brandi and Cordin 1989:124)

b.

*Quante	ragazze	le	hanno	parlato	con	te
how.many	girls	3PL	have.3PL	spoken	with	you

Intended: ‘How many girls have spoken to you?’
(Brandi and Cordin 1989:125)

(129) *Subject restrictive relative clauses trigger default agreement*

a.

Le	ragazze	che	gli	ha	parlato	con	te
the	girls	C	3SG.M	have.3SG	spoken	with	you

‘the girls who have spoken to you?’ (Brandi and Cordin 1989:126)

b.

*Le	ragazze	che	le	hanno	parlato	con	te
the	girls	C	3PL	have.3PL	spoken	with	you

Intended: ‘the girls who have spoken to you’ (Brandi and Cordin 1989:126)

(130) *Subject topicalization triggers default agreement*

a.

La	Maria,	gli	è	venuto,	non	la	Carla
the	Maria	3SG.M	be.3SG	come.PTCP	not	the	Carla

‘Maria has come, not Carla.’ (Brandi and Cordin 1989:139)

b. *La Maria, l' è venuta, non la Carla

*La	Maria,	l'	è	venuta,	non	la	Carla
the	Maria	3SG.F	be.3SG	come.PTCP.F	not	the	Carla

Intended: 'Maria has come, not Carla.' (Brandi and Cordin 1989:139)

Both Brandi and Cordin (1989) and Ouhalla (1993) connect the lack of agreement in subject extraction contexts to the lack of agreement with postverbal subjects. They argue that Ā-movement from the high, preverbal subject position (here, Spec-AgrP) is blocked and therefore the subject must extract from the low, postverbal position. Because the subject extracts from the postverbal position, the same pattern of agreement is found in subject-verb inversion, (127), and subject extraction, (128). Under this analysis, there is a direct connection between (underlying) subject position and the agreement pattern found in a given clause. If the subject is high in the structure, full agreement occurs. If the subject is low in the structure default agreement occurs.

However, two sets of facts are problematic for the analysis that links the subject DP's A-position to the appearance of default agreement. First, Suñer (1992) shows that postverbal subjects in non-subject *wh*-questions control full agreement, as shown in (131).

(131) *Full agreement with a postverbal subject*

a.

Icché	ha-**ella/*egli**	mangiato	la	Maria
what	have.3SG-3SG.F/3SG.M	eat.PTCP	the	Maria

'What has Maria eaten?' (Suñer 1992:655)

b.

Quando	è-**ella/*egli**	arrivata/*arrivato	la	Maria
when	be.3SG-3SG.F/3SG.M	arrive.PTCP.F/arrive.PTCP	the	Maria

'When did Maria arrive?' (Suñer 1992:655)

The presence of full agreement in these examples cannot be explained by an analysis in which such agreement is dependent on the subject raising to Spec-AgrP. The problem comes from the relative ordering of the verbs, subject DP and subject clitic. In both examples in (131), there is an auxiliary (*ha* in 131a and *è* in 131b) and a participle main verb (*mangiato* in 131a and *arrivata* in 131b). In both examples the auxiliary precedes the subject clitic while the participle follows auxiliary+subject clitic concatenation.

(132) *Word order in (131)*

AUXILIARY ≫ CLITIC ≫ PARTICIPLE ≫ subject DP

Poletto (1993) analyzes the word order in (132) as resulting from head movement of the finite verb to C, moving and inverting the clitic in the process. Poletto treats the subject clitic as a second agreement morpheme adjoined to the head T, and therefore, movement to C via T will take the clitic as well. Although I difference from Poletto in treating the clitic as heading a distinct projection above T, movement of the clitic to C with the auxiliary is still expected, as the auxiliary must move through both T and Agr to reach C because of the head movement constraint (Travis 1984). However, if the subject must move to Spec-AgrP to control full agreement, we expect the subject to precede the participle in (131) as it does in other examples that are taken as evidence of subject raising being a requirement of full agreement. That is, we expect the word order in (133a), with the structure in (133a).

(133) a. *Expected word order with subject in Spec-AgrP*
AUXILIARY ≫ CLITIC ≫ subject DP ≫ PARTICIPLE

b. *Structure of word order in (a)*
$[_{\mathrm{CP}}$ Aux+T+Agr+C $[_{\mathrm{AgrP}}$ $\mathrm{DP_{SUBJ}}$ t_{Agr} $[_{\mathrm{TP}}$ t_{T} $[_{\mathrm{AuxP}}$ t_{Aux} … V.PTCP …]]]]

An analysis of the examples in (131) in which the subject DP has raised to Spec-AgrP would therefore have to posit a position between CP and AgrP that the participle moves to only in the case that the auxiliary moves to C.

From this I conclude that the simplest analysis of the postverbal subjects in (131) is that they do not move to Spec-AgrP and that they stay low, in their base position, just as the postverbal subjects in (127) above do.[21] We must therefore further conclude that Agr and T are able to agree with postverbal subjects, even when those subjects have not raised to AgrP.

The second complication comes from the behavior of 1st and 2nd person subjects in postverbal position. Suñer (1992) shows that when a 1st or 2nd person subject occurs postverbally, there must be full agreement on the verb and there is a fully agreeing subject clitic. This is shown in (134).

(134) *Postverbal 1st and 2nd person subjects control full agreement*

a. e parl-o io
1SG speak-1SG 1SG
'I speak.' (Suñer 1992:652)

b. tu parl-i te
2SG speak-2SG 2SG
'You speak.' (Suñer 1992:652)

c. si parl-a noi
1PL speak-1PL 1PL
'We speak.' (Suñer 1992:652)

21. At the very least, we must conclude the subjects in (127) and (131) do not move to Spec-AgrP. I leave to further research whether or not the subjects are in the exact same structural position in these examples.

d.

vu	parl-i	voi
2PL	speak-2PL	2PL

‘You speak.’ (Suñer 1992:652)

I give a detailed analysis of the agreement facts in (134) in section 3.5.2 of chapter 3. What matters at this point is that, taken together with the data in (127) and (131), they indicate that there is no simple one-to-one mapping between post- vs. preverbal subject position and default vs. full agreement. Therefore, we need to find an alternative account for why (some) postverbal subjects cannot control full agreement, and, in turn, why extracted subjects also cannot control full agreement.

Belletti (2001) shows that subject inversion in Standard Italian is licensed by (new information) focus. Specifically, she argues that there is a FocP in the left periphery of VP and that postverbal subjects move to that position. Evidence that this property also holds for the northern Italian dialects discussed here comes from Trentino. Mereu (1999) shows that inversion in Trentino does indeed lead to a focused interpretation of the postverbal subject.

(135) *Trentino: focused postverbal subjects trigger default agreement*

a.

Ø	e’	vegnù	le	so’	sorele
DFLT	be.3SG	come.PTCP	the	3SG.POSS	sisters

‘HIS/HER SISTERS came.’ (Mereu 1999:238)

b.

*Le	son	vegnù	le	so’	sorele
3PL.F	be.3PL	come.PTCP.F.PL	the	3SG.POSS	sisters

Intended: ‘HIS/HER SISTERS came’ (Mereu 1999:238)

In (135), the focused interpretation of the postverbal subject cooccurs with default agreement on the verb and no subject clitic. Here, I have represented the lack of a subject clitic with Ø (glossed DFLT for ‘default’). This pattern of agreement in Trentino occurs in the exact same environments that the default agreement + *e/gl(i)* clitic occur in Fiorentino:

(136) *Trentino: default agreement + Ø subject clitic*

a. *Impersonal passive*

Ø	é	sta	trova	na	borsa
DFLT	be.3SG	PASS	found	a	bag

‘There was found a bag.’ (Brandi and Cordin 1989:137)

b. *Subject* wh-*question*

Quante	putele	Ø	ha	parlá	con	ti
how.many	girls	DFLT	have.3SG	spoken	with	you

'How many girls have spoken to you?' (Brandi and Cordin 1989:124)

c. *Subject relative*

Le	putele	che	Ø	ha	parlá	con	ti
the	girls	C	DFLT	have.3SG	spoken	with	you

'the girls who have spoken to you' (Brandi and Cordin 1989:126)

d. *Subject topic*

Ø	é	sta	trova	na	borsa
DFLT	be.3SG	PASS	found	a	bag

'There was found a bag.' (Brandi and Cordin 1989:137)

Thus, we see that there is a correlation between the focused status of a postverbal subject and default agreement, just as there is a correlation between Ā-movement to a preverbal position and default agreement.

I propose that we extend Belletti's analysis of postverbal subjects in Standard Italian to Fiorentino and Trentino. Specifically, I argue the postverbal focused subjects like those in (135) carry an Ā-feature [FOC(US)] in these dialects. This leads to a unification of the types of subjects that trigger anti-agreement in terms of their feature structure, rather than in terms of the position they occupy before they extract. In subject *wh*-questions, subject topicalizations, and subject relative clauses, the subject bears an Ā-feature that triggers movement to Spec-CP. In clauses with a postverbal focused subject, the subject DP bears a [FOC]. The relevant structures are shown in (137).

(137) *Unified analysis of Fiorentino anti-agreement*

a. *Wh-question, relative clause, and subject topic*[22]

$[_{\text{CP}}\ \text{DP}^{i}_{[\bar{\text{A}}]}\ \text{C}\ [_{\text{AgrP}}\ \text{Agr}\ [_{\text{TP}}\ \text{V+T} \dots [\dots t_i \dots]]]]$

b. *Postverbal focus*[23]

$[_{\text{CP}}\ \text{C}\ [_{\text{AgrP}}\ \text{Agr}\ [_{\text{TP}}\ \text{V+T} \dots [\dots \text{DP}_{[\text{FOC}]} \dots]]]]]$

22. In (137a), I assume that the Ā-marked DP moves to Spec-CP directly from its low position without transiting through Spec-AgrP. This is not crucial.

23. In (137b), I depart from Belletti's (2001) analysis of postverbal focused subjects slightly in not assuming movement to a focus position below T. This is not crucial for the analysis here; what is important is the presence of the [FOC] feature on the postverbal DP.

Recall that the structures in (137) are the ones that exhibit an invariant subject clitic and default agreement on the verb. Assuming that the analysis of these constructions is on the right track, there is a direct correlation between the appearance of default agreement and subjects that bear Ā-features.

I propose that it is these Ā-features that are directly responsible for default agreement in Fiorentino and Trentino. Specifically, I argue that when the φ-probes on T and Agr interact with a subject DP bearing an Ā-feature, both [Ā] and [φ] are copied to those probes, just as in Tarifit and Abaza. I argue further that the same φ-impoverishment rule that is active in Tarifit and Abaza, repeated in (138), also occurs in Fiorentino.

(138) *Fiorentino/Trentino φ-feature impoverishment (to be revised)*
[φ] → Ø / [__, Ā, Agr]

Just as in Tarifit and Abaza, this rule deletes all φ-features on heads with the [Agr] feature that bears both [Ā] and [φ]. Because there are no longer φ-features on these heads to be spelled out, an underspecified agreement form occurs.

As an astute reader will have noticed, the impoverishment rule in (138) does not account for the presence of full agreement with postverbal 1st/2nd person subjects in (134). If the above rule is the only one operative in the language, we expect there to be no agreement with such subjects. I present a detailed analysis of these facts in section 3.5.2. What turns out to be necessary is an impoverishment rule that is triggered only in the presence the feature [−PARTICIPANT]. As we will see, such rules are independently necessary for languages unrelated to Fiorentino. For now, I set aside these facts until chapter 3.

There is an important difference between Fiorentino and Trentino on the one hand and Abaza and Tarifit on the other. Namely, as we have seen, Abaza and Tarifit both have some piece of morphology that realizes the Ā-feature that is left over after a φ-probe has been targeted by impoverishment. These morphemes do not occur elsewhere in the agreement paradigm, instead only being inserted into a terminal node that has an Ā-feature.

Such dedicated Ā-morphology is not present in Fiorentino and Trentino. All the forms that surface in Ā-contexts in these two languages are active outside of the presence of Ā-features. In both languages, the finite verb appears in a 3rd person singular form in anti-agreement contexts and non-Ā-contexts that require default agreement, such as impersonal passives. As for subject clitics, in Fiorentino, the clitic *e/gl(i)* appears in anti-agreement contexts, and that clitic also surfaces with 3rd person masculine singular subjects and with expletives (such as in the impersonal passive), as shown in (139). In Trentino, no clitic occurs in anti-agreement; this is the same pattern that occurs for impersonal passives, as shown in (140b). Unlike in Fiorentino, the form of the subject clitic that occurs with 3rd person masculine singular subjects in Trentino is different than the form that surfaces in anti-agreement, as shown in (140a). In other words, Trentino there is a morphological split between clauses with a non-Ā-marked 3rd person masculine singular subject and clauses with default agreement (such as anti-agreement contexts and impersonal passives). In the former context, the masculine singular clitic *el* appears; in the latter contexts, no subject clitic surfaces (marked here as Ø). Compare (139) with (140).

(139) *Fiorentino underspecified agreement* (Suñer 1992:644, fn 5)

a. *3rd person masculine singular*

gl'	è	partito
3SG.M	be.3SG	left

'He has left.'

b. *Impersonal passive*

gl'	é	stato	trovato	una	borsa
3SG.M	be.3SG	PASS.PTCP	find.PTCP	a	bag

'There was found a bag.'

(140) *Trentino underspecified agreement*

a. *3rd person masculine singular*

el	parla
3SG.M	speak.3SG

'He speaks.' (Suñer 1992:643)

b. *Impersonal passive*

Ø	e'	stà	trovà	'na	borsa
DFLT	be.3SG	PASS.PTCP	find.PTCP	a.F	bag

'There was found a bag.' (Suñer 1992:644)

The distribution of subject clitics in the three contexts picked out above (full 3SG.M subject, Ā-subject, impersonal passive) is summarized in table 2.7.

	3SG.M subject	Ā-subject	Impersonal
Fiorentino	*e/gl(i)*	*e/gl(i)*	*e/gl(i)*
Trentino	*el*	Ø	Ø

Table 2.7: Distribution of subject clitics in Fiorentino vs. Trentino

This split may at first seem challenging for a unified account of Fiorentino and Trentino—if the Ā-subject and impersonal contexts truly reflect default agreement, why do these languages not show the same pattern of clitic morphology across the board? I suggest that the key to understanding this difference between Fiorentino and Trentino is a proper analysis of the vocabulary item that is realized in the 3SG.M subject slot in table 2.7 in the two languages. Concretely, I propose that in Fiorentino, the clitic *e/gl(i)* is the true default clitic form in the language. That is, *e/gl(i)* spells out an Agr-feature but does not spell out any φ-features. This is shown in (141).

(141) *VI for Fiorentino* e/gl(i)
e/gl(i) ↔ [Agr]

The vocabulary item in (141) is the most underspecified possible for an Agr-head (other than one that does not realize any features at all). This means it will be inserted when there are no φ-features on an Agr head to realize, such as when impoverishment has occurred in an Ā-context or in impersonal passives. But it will also be inserted if there is no other VI more specific than it. This, I argue, is what happens in the 3SG.M subject context in Fiorentino. There is simply no other agreement VI that spells out the features of 3SG.M subjects, and therefore, *e/gl(i)* is inserted.

In Trentino, on the other hand, there are two vocabulary items available in the contexts listed in table 2.7. Specifically, I propose that the clitic *el* spells out a subset of φ-features present on 3SG.M subjects, while Ø is the true underspecified form in the language. This analysis is given in (142).

(142) *VIs for Trentino* e/gl(i)
a. el ↔ [-FEM, Agr]
b. Ø ↔ [Agr]

The clitic *el*, in (142a), spells out [−FEM, AGR]. Thus, it will be inserted into an Agr head which has the feature [−FEM] and for which there is no more specific VI.[24] When an Agr head has no φ-features, such as when it has undergone impoverishment in an Ā-context or in impersonal constructions, no clitic will surface. Here I have modeled this as a Ø VI which spells out only an Agr-feature. This makes Ø in Trentino the equivalent to *e/gl(i)* in Fiorentino.[25]

Under this analysis, the parallelism between Fiorentino and Trentino is maintained. In both languages, realization of the clitic in the Ā-context is the same as one another, non-Ā-construction in which we independently expect there to be no φ-features available for subject agreement (namely, the impersonal passive). The difference between the two languages comes down purely to morphology. In Fiorentino, the same clitic surfaces in

24. The feature specification in (142a) is the most minimal feature difference necessary to distinguish 3SG.M, 3SG.F, and default agreement.

25. Alternatively, it could be that there is no vocabulary item for [Agr] in Trentino, and the lack of a VI leads to the lack of an overt clitic.

contexts where there is full agreement, while in Trentino, there is a separate clitic for this scenario.[26]

The difference between the Fiorentino/Trentino anti-agreement pattern, with no overt realization of [Ā], and the pattern found in Abaza and Tarifit, where there is overt realization of [Ā], is entirely due to morphological variation as well, and not some deep difference in the syntax of extraction. That is, the difference boils down to the fact that Fiorentino and Trentino have no agreement VIs specified to realize [Ā], while Tarifit and Abaza do have such VIs. In all three languages, the same process leads to the appearance of underspecified agreement in the context of Ā-movement. A φ-probe interacts with both [φ] and [Ā], and impoverishment applies to that probe in the morphology. This is a desirable result, given that the syntactic contexts in which underspecified agreement occurs vary to a non-trivial degree between the languages. The burden of proof is on syntactic approaches to demonstrate that the languages in question share some syntactic restriction that would lead to a lack of φ-feature agreement in these contexts. Furthermore, syntactic approaches would still need to posit some sort of morphological variation between Fiorentino/Trentino on the one hand and Abaza and Tarifit on the other to capture the difference in Ā-exponence. In the current theory, the appearance of underspecified φ-agreement and the possibility of Ā-exponence is accounted for in a unified way.

The analysis of Fiorentino anti-agreement presented in this section has several advantages over previous ones. First, my analysis accounts for default agreement with postverbal subjects and default agreement with Ā-extracted subjects without positing null *pro*. Instead, the appearance of default agreement is tied to the featural representation of the subject; subjects that bear Ā-features trigger impoverishment on the probes that they agree with, leading to default agreement. This provides a way of distinguishing postverbal subjects that occur with default agreement from postverbal subjects that occur with full agreement. Namely, default agreement in VS word order is linked to the focus interpretation of the subject, which in is tied to a [foc] feature on the subject. VS word order without a focus interpretation does not lead to default agreement because the featural trigger of impoverishment is not present.

An account linking default agreement in VS word order to the presence of a null *pro* cannot account for this split in as straightforward a away. Such an account would have to posit that *pro* is not present in VS orders that lack focus interpretation of the subject. One way of accounting for the lack of *pro* in such contexts would be to have the subject

26. For both languages, I assume that 3rd person singular marking on the verb is the elsewhere form of T, and will therefore be found when the φ-features on T have been deleted by impoverishment. A VI is given for the Fiorentino 3rd person singular present tense suffix *-a* in (i).

(i) *VI for Fiorentino* -a
 -a ↔ [Agr, pres, T]

raise to the relevant agreement position with the verb subsequently moving higher. But, as I have argued above, such an analysis is not viable for Fiorentino based simply on word order facts.

Furthermore, as we will see in section 3.5.2, the featural account is able to derive the asymmetry between 1st/2nd person postverbal subjects, which occur with full agreement, and 3rd person postverbal subjects, which occur with default agreement. Previous accounts relying on a null *pro* in these contexts would need to posit a difference in the representation of *pro* when it occurs with a 1st/2nd person subject versus when it occurs with a 3rd person subject.

2.5 Summary

In this chapter, I have argued for a unified theory of reduced φ-agreement in the context of Ā-features. Specifically, I proposed that φ-probes are *Ā-sensitive*; that is, when a φ-probes interacts with a goal that bears both φ-features and an Ā-feature, both the Ā-feature and the φ-features are copied back to the probe.

(143) *Ā-sensitive φ-agreement*
$[\ \dots\ \mathrm{H}_{[\mathrm{u}\varphi]}\ \dots\ \mathrm{DP}_{[\varphi,\ \bar{\mathrm{A}}]}\ \dots\ ]$
φ+Ā

Ā-sensitive φ-agreement therefore results in a feature bundle that contains [φ] and [Ā]. In the morphological component, partial or total impoverishment may apply to this composite feature bundle, deleting some or all of the φ-features. Impoverishment blocks the insertion of an otherwise appropriate, more highly specified agreement exponent. Impoverishment of φ-features in the context of Ā-features therefore derives the leveling of φ-agreement contrasts when the agreement controller has an Ā-feature.

The Ā-feature that remains after φ-impoverishment has taken place may be realized, but it need not be. In Abaza, for instance, we have seen that one paradigm of agreement morphology has a special exponent that realizes [Ā] while another agreement paradigm does not. Instead, the most underspecified agreement exponent available surfaces in the Ā-feature context. In Fiorentino, there is no exponent that realizes the feature [Ā]—the default form surfaces in the Ā-context. The difference between the appearance of special agreement morphology and the appearance of a default form is not deep; it reduces to the presence or absence of vocabulary items that can realize [Ā].

Other differences in the distribution of Ā-sensitive φ-agreement between individual languages emerge because of the syntax of agreement in those languages. For example, a difference between Fiorentino/Trentino on the one hand and Abaza and Tarifit concerns the number of heads that are affected by Ā-feature triggered impoverishment in a given clause. In Fiorentino, a DP bearing Ā-features triggers impoverishment on two heads, Agr and T, as shown in (144). In Tarifit and Abaza, on the other hand, a DP with Ā-features triggers impoverishment only on one head—Asp, in Tarifit, as shown in (145), or *v* or T in Abaza, as shown in (146).

(144) *Fiorentino/Trentino: impoverishment applies to Agr and T*

IMPOVERISHMENT

$[_{\text{AgrP}}\ \text{Agr}_{[\text{u}\varphi]}\ [_{\text{TP}}\ \text{T}_{[\text{u}\varphi]}\ [\ \ldots\ \text{DP}_{[\varphi,\ \text{FOC}]}\ \ldots\ ]]]$

AGREE FOR [φ, Ā]

(145) *Tarifit: impoverishment applies to Asp*

IMPOVERISHMENT

$[_{\text{AspP}}\ \text{Asp}_{[\text{u}\varphi]}\ [\ \ldots\ \text{DP}_{[\varphi,\ \bar{\text{A}}]}\ \ldots\ ]]$

AGREE FOR [φ, Ā]

(146) *Abaza: impoverishment applies to T/v*

a. *Impoverishment applies to v*

IMPOVERISHMENT

$[_{v\text{P}}\ \text{DP}_{[\varphi,\ \bar{\text{A}}]}\ \text{v}_{[\text{u}\varphi]}\ [\ \ldots\ ]]$

AGREE FOR [φ, Ā]

b. *Impoverishment applies to T*

IMPOVERISHMENT

$[_{\text{TP}}\ \text{T}_{[\text{u}\varphi]}\ [\ \ldots\ \text{DP}_{[\varphi,\ \bar{\text{A}}]}\ \ldots\ ]]$

AGREE FOR [φ, Ā]

The theory here predicts that this difference should occur, or at least in principle be possible—any head that receives both [φ] and [Ā] should be able to be targeted by an impoverishment rule referring to [Ā]. In Fiorentino, both Agr and T Agree with the subject DP that bears both [φ] and [Ā], and impoverishment applies to those heads in the morphology. This is implemented through an impoverishment rule that refers to [Agr]. Because both heads are probes, and therefore have the feature [Agr], they will both be targeted by the impoverishment rule. In Tarifit, there is only one head with an [Agr] feature, Asp, and the same process applies to it, but no other head.

The idea that special agreement morphology and partially or non-agreeing forms indexing Ā-extracted may have a unified source is not completely absent in the literature. Schneider-Zioga (1995) uses the term ‘Ā-agreement’ to refer to three phenomenon in the Bantu language Kinande: the φ-agreement with Ā-movement on C, (147a); special agreement on the verb that indexes an extracted subject, (147b); and the lack of an overt agreeing particle usually found in double object constructions, (147c).

(147) *Kinande: agreement in Ā-contexts*

a. *Agreeing complementizer*

aBahI$_i$	$\boxed{\textbf{BO}_i}$	Yosefu	akalangIra	t_i
CL2.who	CL2.C	Joseph	see	

‘Who did Joseph see?’ (Schneider-Zioga 1995:71)

b. *Special subject agreement*

IyOndI$_i$	**y’**$_i$	t_i	$\boxed{\textbf{u}_i\textbf{-}}$/*a$_i$-kalangIra	Marya
CL1.who	CL1.C		CL1.SBJ.AA/CL1.SBJ	-see

‘Who saw Mary?’ (Schneider-Zioga 1995:75)

c. *Lack of particle in DOC*

EBIhI$_i$	**ByO**$_i$	Yosefu	akaha	t_i	$\boxed{(\text{*}\textbf{ByO}_i)}$	Marya
CL8.what	CL8.C	Joseph	gives		CL8.LK	Mary

‘What is Joseph giving Mary?’ (Schneider-Zioga 1995:76)

Schneider-Zioga analyzes each of these agreement outcomes as deriving from the same property: they are Ā-anaphoric morphemes that must be locally bound by an element in an Ā-position.[27] The agreeing complementizer and special subject agreement have overt realizations in these contexts; the lack of an overt linking particle in (147c) results from the lack of an overt Ā-exponent for that particle. In other words, Schneider-Zioga’s analysis of these three effects clearly shares a core intuition with mine: agreement with Ā-element

27. For Schneider-Zioga, the agreement morpheme itself is an anaphor which must be locally Ā-bound. As far as I can tell, there would be no difference in saying that these morphemes were the outcome of agreement with a locally Ā-bound null anaphor.

lead to disparate different morphological effects, depending on the identity of the head hosting agreement.

However, even though it has been recognized in the literature that loss of agreement distinctions in Ā-contexts can be unified with the appearance of special agreement morphemes in Ā-contexts, I am unaware of any attempt at unification as broad as mine. For instance, I know of no other attempts to unify anti-agreement in Fiorentino with the types of effects observed in Kinande. Anti-agreement in Fiorentino remains analyzed as a result of a syntactic constraint on movement, while effects like those in Kinande remain analyzed as agreement with an Ā-element. However, as we have seen, the Ā-sensitive agreement approach to Fiorentino fares better in the face of the empirical facts. Thus, the morphological approach that I have developed in this chapter allows us to see just how deep the similarity between Fiorentino, Abaza, and Tarifit is.

In addition to allowing for a broad unification of agreement effects in the context of Ā-features, the impoverishment account allows us to ask questions about the patterns of exponence observed in these contexts. That is, by situating the analysis in DM, we can use an explicit framework and set of tools to discover what possible morphological outcomes Ā-sensitive φ-agreement can lead to.

In the next chapter, I demonstrate that φ-impoverishment in the context of Ā-features can be *partial*, neutralizing only a subset of contrasts, as opposed to the patterns of *total* impoverishment that we have seen in this chapter. I show that the number of potential impoverishment rules is constrained by an implicational hierarchy, and that this hierarchy can be derived with certain assumptions about the internal structure of φ-feature bundles. Furthermore, I show that impoverishment in the context of Ā-features can be conditioned by the appearance of specific φ-features in the targeted bundle. I refer to this latter phenomenon *complex impoverishment*, and I argue that taken together, partial impoverishment and complex impoverishment cannot be straightforwardly derived by a syntactic constraint approach to anti-agreement. Therefore, the patterns discussed in the next chapter provide strong support for the morphological theory of anti/*wh*-agreement developed in this dissertation.

Chapter 3

Patterns of Impoverishment

3.1 Introduction

In this chapter, I closely examine the patterns of φ-impoverishment that are attested crosslinguistically. A major part of this study is the phenomenon of *partial anti-agreement*—cases of anti-agreement in which only a subset of φ-feature contrasts are leveled in the context of an Ā-feature. A simple example comes from comparing two Berber languages, Kabyle, in (148), and Tashlhit, in (149).

(148) *Kabyle (Berber) anti-agreement*

a. argaz y-nɣa-n
man 3SG.M-kill-PTCP
'the man who killed…' (Drouin 1996:235)

b. irgazn y-nɣa-n
men 3SG.M-kill-PTCP
'the men who killed…' (Drouin 1996:235)

(149) *Tashlhit (Berber) partial anti-agreement*

a. tamɣart lli y-uls-n
woman CREL 3SG.M-start.again-PTCP
'the woman who started again.' (Drouin 1996:237)

b. irgazn lli uls-nin
men CREL start.again-PTCP.PL
'the men who started again.' (Drouin 1996:237)

In both languages, subject relativization requires that the verb be in the participle form (anti-agreement, as discussed in chapter 2). In Kabyle, the form of the verb does not covary with the plurality of the extracted subject. In Tashlhit, however, plurality of the extracted subject is marked on the verb in the relative clause (*y-uls-n* in 149a vs. *uls-nin* in 149b). I will refer to the Kabyle pattern as *total anti-agreement* and the Tashlhit pattern as *partial anti-agreement.*

(150) *Total anti-agreement*
All φ-feature contrasts are suppressed in the context of Ā-features.

(151) *Partial anti-agreement*
A subset of φ-feature contrasts are suppressed in the context of Ā-features.

The existence of partial anti-agreement shows us that, in cases like (149b), at least some of the φ-features of an extracted DP must be available in the syntax so that these features can be spelled out in the morphology. This is significant; whatever theory one appeals to to explain the requirement that the verb be in a special form in (148) and (149), it should also be able to explain the difference between (148b) and (149b). That is, why is the [+PLURAL] feature of the extracted subject in (149b) spelled out on the verb but not in (148b)?

Within the theory of Ā-sensitive agreement that I argue for in this dissertation, the partial anti-agreement pattern found in Tashlhit results from *partial φ-impoverishment.* The difference between the Kabyle and Tashlhit comes down to a difference in the impoverishment rules that are triggered in the context of an Ā-feature. In Kabyle, the relevant rule deletes all φ-features. In Tashlhit, the relevant rule does not delete [NUMBER] features. Thus, in that language, the number of an extracted subject will still be overtly reflected by agreement morphology in the relative clause. The syntax of extraction, however, remains uniform across the two languages. The difference between them sits squarely in the morphological component.

I first examine the attested patterns of partial φ-impoverishment in section 3.2, and show that there are a limited number of attested partial impoverishment patterns and use these to argue for an implicational hierarchy that regulates φ-impoverishment, the Feature Impoverishment Hierarchy (FIH) given in (152).

(152) *Feature Impoverishment Hierarchy (FIH)*
PERSON ≪ GENDER ≪ NUMBER

In section 3.3, I develop a theory of φ-impoverishment that derives the attested range of impoverishment patterns. This theory makes use of important insights and assumptions from the literature on φ-features and impoverishment. Specifically, I translate the implicational hierarchy that regulates φ-feature impoverishment into a feature geometric representation of φ-bundles. Much work on φ-features has shown that bundles of φ-features must have some internal organization, and cannot simply be unstructured sets (Béjar 2003; Béjar and Rezac 2009; Cowper and Hall 2004; Harley and Ritter 2002). I adopt a slightly modified version of the φ-feature geometry proposed by Campbell (2012). In Campbell's theory, there are hierarchical relations between the feature categories of [PERSON], [GENDER], and [NUMBER], and these categories are themselves decomposed into sets of entailment relations.

I argue that impoverishment operates over these rich, two-dimensional φ-feature sets, and that the hierarchical relationships within it derive the limited number of possible anti-agreement patterns. Specifically, I advocate for a theory of impoverishment as feature delinking, in which φ-feature deletion involves the erasure of linked sections of the φ-feature geometry. This is the original conception of impoverishment developed in Bonet (1991) and Noyer (1992). By assuming a delinking model of impoverishment, the hierarchical relationships within the φ-feature set determine the possible set of impoverishment operations. It is this conception of impoverishment that allows me to straightforwardly derive the Feature Impoverishment Hierarchy.

In section 3.4, I then apply this theory of partial φ-impoverishment to actual language data. Specifically, I present case studies of the Nilotic language Dinka in section 3.4.1; the Berber language Tashlhit in section 3.4.2; and the Bantu language Lubukusu in section 3.4.3. These three languages provide examples of the attested patterns of partial anti-agreement.

In section 3.5, I turn to cases of what I refer to as *complex impoverishment*, a pattern of deletion in which impoverishment of one or more φ-features is conditioned on the presence of *another* φ-feature. I show that complex impoverishment can be total, deleting all φ-features from an affected feature bundle, or partial, deleting only a subset. I further show how patterns of complex impoverishment provide evidence for binary, rather than privative, φ-feature representations.

In section 3.6, I argue that partial anti-agreement cannot be analyzed as partial syntactic agreement. The key arguments come from partial complex impoverishment and the types of features that can condition it. I conclude that partial anti-agreement, whether complex or not, lends strong support to the morphological analysis of anti-agreement.

Finally, in section 3.7, I show that a crucial prediction of my analysis is borne out. Namely, I show that a language may spell out Ā-features in its φ-agreement paradigm without those Ā-features triggering φ-impoverishment. In other words, φ-impoverishment and the morphological realization of the Ā-features that (sometimes) trigger φ-impoverishment are formally independent. This is the Impoverishment/Ā-Exponence Independence generalization, and I argue that this generalization also supports the morphological view of Ā-sensitive φ-agreement.

3.2 Asymmetries in φ-feature impoverishment

Recall that anti-agreement and *wh*-agreement arise because of the systematic leveling of φ-feature contrasts in the context of Ā-features. This leveling is evidenced by the syncretism that occurs in φ-agreement paradigms in the Ā-contrasts, as argued in chapter 2. Therefore, a key question to ask is what syncretisms arise within φ-agreement paradigms in the context of Ā-features and which do not. Further, if not all imaginable syncretisms are attested, are there generalizations about the attested patterns of leveling?

When one looks closely at the patterns of syncretism attested crosslinguistically, the number of possible patterns turns out to be very small. For example, in a language with person and number agreement, the leveling patterns in table 3.1 and table 3.2 are attested, whereas the leveling pattern in table 3.3 is unattested.

	SG	PL
1	A	A
2	A	A
3	A	A

Table 3.1: Total anti-agreement

	SG	PL
1	A	B
2	A	B
3	A	B

Table 3.2: Partial anti-agreement

	SG	PL
1	A	A
2	B	B
3	C	C

Table 3.3: Unattested pattern of anti-agreement

In table 3.1, all φ-feature contrasts are leveled, leading to total syncretism across the paradigm in the Ā-context. In table 3.2, only person contrasts are leveled, leading to a paradigm that distinguishes only number in the Ā-context. The unattested pattern in table 3.3 levels number, leaving a paradigm that distinguishes only person.

To make this claim more concrete, the attested patterns of leveling in the crosslinguistic survey of 63 languages reported on in this dissertation in section 1.2 are summarized in table 3.4 on the next page.

	Non-Ā-Context			Ā-Context		
	Person	Gender	Number	Person	Gender	Number
Type 1	✓	(✓)	✓			
Type 2	✓	(✓)	✓			✓
Type 3	✓	✓	✓		✓	✓

Table 3.4: Patterns of syncretisms in the context of Ā-features

The left side of table 3.4 shows which φ-features are indexed in contexts where the agreement controller does not bear Ā-features; the right side of the table shows which of those features are indexed when the agreement controller does bear Ā-features.[1] In type 1 leveling, all normal agreement features are neutralized (as in Abaza and Tarifit, discussed in the previous chapter). In type 2, all normal agreement features other than number are neutralized (as in Tashlhit, to be discussed in section 3.4.2). In type 3, only person agreement is neutralized, while gender and number agreement remain indexed (as in Lubukusu, to be discussed in section 3.4.3).

The patterns of syncretism in table 3.4 can be classified as *metasyncretisms* as defined by Williams (1994). Williams identifies metasyncretisms as syncretisms that hold for a particular set of features in a language (or across languages), regardless of the particular affixes that are used in any particular instance of the syncretism. In the DM literature, several authors have shown that impoverishment is an important source of metasyncretism (Bobaljik 2001; Frampton 2002; Harley 2008). Thus, the existence of repeated and limited patterns of syncretism in the presence of Ā-features provides support for the idea that impoverishment underlies anti/*wh*-agreement.

The generalization that emerges from table 3.4 is that φ-contrast neutralization under Ā-sensitive agreement is constrained by an implicational hierarchy given in (153).

(153) *Feature Impoverishment Hierarchy (FIH)*
PERSON ≪ GENDER ≪ NUMBER

The Feature Impoverishment Hierarchy (FIH) dictates that an impoverishment rule that deletes feature [X] must also delete all features to the left of [X]. In other words, the FIH requires that a rule may not delete [GENDER] without also deleting [PERSON] simultaneously. However, a rule that deletes [GENDER] and [PERSON] while leaving [NUMBER] in place conforms to the FIH.

We will see over the course of this chapter that it is important for the FIH to constrain individual impoverishment rules and not *all* impoverishment rules in a given lan-

1. Checkmarks in parentheses do not indicate optional gender agreement. See footnote 3 in chapter 1.

guage. That is, it is not the case that if a language has an impoverishment rule that deletes [GENDER] and [PERSON], all other impoverishment rules in that language will also delete [GENDER] and [PERSON]. For example, in some Berber languages, there are two impoverishment rules: one that deletes only [PERSON] and one that deletes both [PERSON] and [GENDER]. Which rule is triggered depends on whether or not there is a plural feature within the affected feature bundle. However, both of these rules are consistent with the FIH. I discuss such cases in section 3.5 below.

The fact that anti-agreement can be partial, and that the feature [PERSON] behaves in a special way in anti-agreement contexts, has been independently observed in the literature. Henderson (2007, 2013) and Diercks (2010) show that in many Bantu languages, anti-agreement levels person agreement without affecting gender and number agreement. Ouhalla (2005a) notes that in some Berber languages, person agreement is neutralized independently of number agreement.[2] What has not been noticed in these previous studies is the implicational relationships between the features [PERSON], [GENDER], and [NUMBER] and the robustness of these relationships. This is mainly because previous studies have been limited to a single language family, while the survey that this dissertation is based on is cross-family.

The strength of the Feature Hierarchy generalization and the FIH emerge from the comparative approach this is adopted in this dissertation. Though most languages in the survey level all feature contrasts in the Ā-context (type 1), the FIH is robust in that is confirmed by 21 languages across several unrelated languages families and areas of the world. The languages that instantiate type 2 and type 3 are listed in (154) and (155), respectively.

(154) *Type 2: [NUMBER] remains*

  a. *Romance*: Catalan, Galician
  b. *East Sudanic*: Dinka
  c. *Berber*: Tashlhit
  d. *Dogon*: Ben Tey
  e. *Yukaghiric*: Tundra Yukaghir

(155) *Type 3: [NUMBER] and [GENDER] remain*

  a. *Berber*: Tashlhit, Tamazight, Ghadamès, Ouargli, Tamahaq, Tawellemmet, Tamashek
  b. *Bantu*: Kilega, Lubukusu, Bemba, Luganda, Abo, Kinande, Zulu, Ndebele

2. Languages from these families are discussed later in the chapter. Berber languages are discussed in sections 3.4.2 and 3.5.5 in Bantu languages are discussed in sections 3.4.3 and 3.5.4.

While languages exhibiting type 2 anti-agreement are more geographically and genetically diverse than languages exhibiting type 3 anti-agreement, as is seen by comparing (154) to (155), I do not take this as problematic. Although that it is true that type 3 anti-agreement is limited to two families, Berber and Bantu, these language families are not genetically related. Berber belongs to the Afro-Asiatic family, while Bantu is Niger-Congo. This rules out the possibility that type 3 anti-agreement has been inherited from a common ancestor of the two language families. Furthermore, the two language families are spoken distantly from one another, which rules out type 3 anti-agreement being shared an areal shared among the two families. This, combined with the fact that I have found no counter examples to the FIH in a survey of 63 languages, makes the generalization a strong one.

Because of the robustness of the FIH, it is important to determine if it is itself a primitive of the grammar or if it can be derived. In the next section, I show that it can in fact be derived by combining a rich, two-dimensional structure for φ-features and a specific way that impoverishment operates over such structures.

3.3 Deriving the Feature Impoverishment Hierarchy

In this section, I develop a theory of impoverishment that derives the Feature Impoverishment Hierarchy (FIH; repeated below).

(156) *Feature Impoverishment Hierarchy (FIH)*
PERSON ≪ GENDER ≪ NUMBER

The core of the proposal is that the internal organization of φ-feature sets constrains the way impoverishment operates. Specifically, in section 3.3.1, I adopt a proposal by Campbell (2012) in which φ-feature structure is *two-dimensional*—capturing both hierarchical relations between feature categories and implicational relationships internal to those categories. In section 3.3.2, I show that such a feature structure, when combined a return to the original view of impoverishment as feature delinking (Bonet 1991; Noyer 1992), derives the effects of the FIH.

3.3.1 The organization of φ-features

In the previous chapter, I treated bundles of φ-features as flat structures, as is common in linguistic analysis. For example, a 3rd person feminine plural argument was specified as having the φ-feature set [−PART, -AUTH, +FEM, +PL]. While this type of flat representation is able to account for patterns of agreement in many of the world's languages, a more articulated structure is necessary to account for the patterns of φ-impoverishment discussed in this dissertation. Such an articulated structure is also needed to account for other phenomena independent of anti-agreement, such as agreement hierarchy effects (Béjar and Rezac 2009) and discontinuous agreement (Campbell 2012; Trommer 2002).

It has been widely observed that there are systematic relations that hold between the φ-feature categories (person, gender, and number) crosslinguistically. Greenberg (1963) establishes a systematic asymmetry between number and gender in several of his implicational generalizations. For example, his universal 36 states, "If a language has the category of gender, it always has the category of number" (Greenberg 1963:95). Later researchers noted a similar asymmetry between person and number.

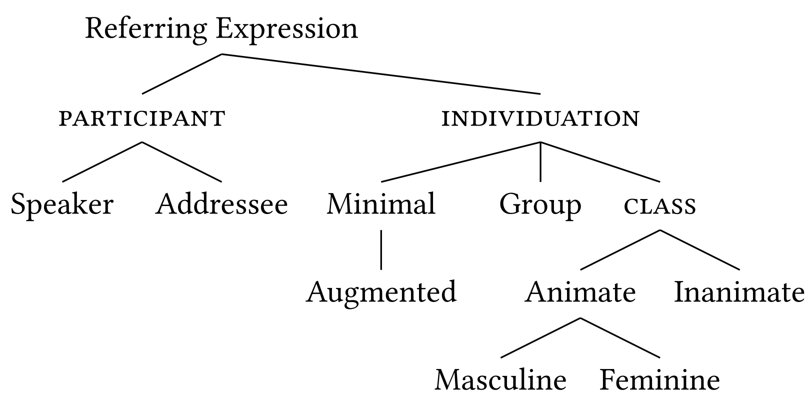
Noyer (1992) encodes these relationships in his Feature Hierarchy Hypothesis, which states that there exists a universal hierarchy of morphosyntactic features, given in (157), that constrains the kinds of morphological rules that can exist and the order in which such rules can apply.

(157) *Universal hierarchy of morphosyntactic features (Noyer 1992:46)*
PERSON FEATURES > NUMBER FEATURES > GENDER FEATURES

Noyer's hierarchy does not reflect the internal organization of φ-features; he treats φ-feature bundles as flat and unstructured. Instead, this hierarchy is a set of external constraints on how the grammar interacts with φ-feature bundles.

Harley and Ritter (2002) reject the view of φ-features set as unstructured bundles and translate the constraints of Noyer's external hierarchy into an actual geometric structure. Their morphological feature geometry for referring expressions is given in (158).

(158) *Feature Geometry for Pronouns (Harley and Ritter 2002:486)*



Harley and Ritter's feature geometry captures natural classes of features and entailment relations among those features. Their geometry encodes the asymmetry of number and gender by including gender ([CLASS] for Harley and Ritter) as a subnode of [INDIVIDUATION], which they use to represent number features. Note, however, that their geometry does not capture the asymmetry between person and number—those features are both immediate daughters of the root node of the geometry.

Another strand of research shows that morpheme ordering tendencies among φ-feature exponents can be captured by internally structured φ-feature sets. In a survey of 100 languages with subject agreement, Trommer (2002) observes that where agreement is split into separate marking of person and number, there is a robust tendency for person marking to precede number marking. Harbour (2008) argues that a φ-structure in which person dominates number can capture Trommer's generalization. For Harbour, this structural dominance is actually syntactic.

Building on the work of Harbour and Harley and Ritter, Campbell (2012) argues for a representation of the φ-set in which dominance is encoded among the feature categories person, gender, and number. Campbell's hierarchy is given in (159).

(159) *Campbell's (2012:90) hierarchy*

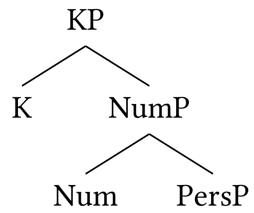
$$\begin{bmatrix} \textsc{person} \\ | \\ \textsc{number} \\ | \\ \textsc{gender} \end{bmatrix}$$

For Campbell, a feature higher in the structure dominates a feature lower in the structure. Thus, [PERSON] dominates [NUMBER] and [GENDER], and [NUMBER] dominates [GENDER]. Campbell combines this feature structure with certain assumptions about vocabulary insertion. She assumes that vocabulary insertion can apply multiple times to the same bundle of features, as long as there are features that have not been spelled out, and that when multiple vocabulary insertion takes place, the order of insertion is constrained by the structure in (159). Specifically, a VI expressing a feature higher in the structure will be inserted before one lower in the structure. Campbell argues that this hierarchy will derive Trommer's generalization and generalizations about discontinuous exponence.

In more recent work on case and number suppletion, Moskal (2015a) and Smith et al. (2018) have proposed number features are merged higher than person in the extended projection of pronouns, as shown in (160).[3]

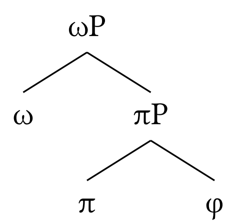
3. In (160), KP is a case projection. Moskal (2015b) and Smith et al. (2018) do not explicitly discuss gender in pronouns.

(160) *Structure of pronouns in Moskal (2015b:366) and Smith et al. (2018:23)*



Harbour (2017) adopts a similar analysis of φ-feature organization. For him, φ-feature bundles have internal syntactic structure and person features are merged lower in the structure than number. Specifically, Harbour argues that φ-bundles are headed by a head φ and that the person head (π) and the number head (ω) sequentially restrict the interpretation of this head.

(161) *Structure of φ-features in Harbour (2017:130)*



Campbell's and Harbour's hierarchies capture the asymmetry between person and number, though they achieve this in mirror fashion. For Campbell, person dominates number, while in Harbour's structure, number dominates person. However, they do this in a slightly different way, in that Harbour's hierarchy is syntactic, while Campbell's is not.

I follow both group of researchers cited above in assuming that asymmetries between φ-feature categories are encoded directly in the structure of the φ-feature set. From Harley and Ritter and Campbell, I adopt the idea that certain φ-feature categories dominate others. From Harbour and Moskal, I adopt the idea that person features are actually located *lower* in the φ-feature category hierarchy. Specifically, I adopt the hierarchy in (162a), where [NUMBER] dominates [GENDER], and [GENDER] dominates [PERSON]. I will abbreviate the labels in (162a) by referring to each category with a label of the form 'φ_{x}', where 'x' is for the first letter of the category in question. Thus, the structure (162a) is equivalent to (162b).[4]

4. Unlike Harbour, I assume that the hierarchy in (162) is the internal structure of φ-feature bundles and not a syntactic object built by Merge. I leave to future research whether treating φ-bundles as syntactic objects would be useful in the explanation of patterns of anti-agreement syncretism.

(162) *Hierarchy of φ-feature categories*

a. $\begin{bmatrix} \text{NUMBER} \\ | \\ \text{GENDER} \\ | \\ \text{PERSON} \end{bmatrix}$

b. $\begin{bmatrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{G}} \\ | \\ \varphi_{\text{P}} \end{bmatrix}$

Following Campbell (2012), this structure forms the first of two dimensions in my φ-set representation. The second dimension of φ-set structure occurs within each φ-feature category and represents the decomposition of these categories into a small set of primitive features. For example, Noyer (1992) proposes that the categories of person and number can be decomposed into the features in (163).

(163) *Noyer's (1992) person and number feature decomposition*

a. *Person features*
   i. [±I]
   ii. [±you]
   iii. [±participant]

b. *Number features*
   i. [±singular]
   ii. [dual]
   iii. [trial]
   iv. [quadral]
   v. [±augmented]

Noyer argues that various permutations of this feature set can encode all possible values of person used in language. For example, third person is represented as [-I, -you, -participant], second person as [-I, + you, +participant], first person exclusive as [+I, -you, +participant], and first person inclusive as [+I, + you, +participant].

Harley and Ritter (2002) transform the feature hierarchy effects described by Noyer into geometrical relations. These authors suggest that primitive features stand in hierarchical relations to one another (see example 158, above). This defines natural classes of features that grammatical rules can target.

Further developing this line of thought, Béjar (2003) and Béjar and Rezac (2009) adapt Harley and Ritter's feature geometry in an attempt to capture both underspecification with φ-feature categories and entailment relationships between primitive features within these categories. Béjar develops a theory in which the representation of each φ-feature category includes a root node (P, N or G) which corresponds to the most underspecified value of the category. For example, 3rd person is represented just by the root node, [P]; 2nd person is represented by [P[PARTICIPANT]]; and 1st person is represented by [P[PARTICIPANT[SPEAKER]]].

Combining the idea of dominance relations between φ-feature categories and within-category featural decomposition and entailment relationships, Campbell (2012) proposes that φ-feature sets are two-dimensional. As shown above, dominance relationships among categories are shown on the vertical dimension. Within-category decomposition, on the other hand, is shown on horizontal dimension. For example, the representation of a 1st person feminine dual φ-feature set for Campbell is given in (164).

(164) *First person feminine dual for Campbell (2012:93)*

$$\begin{bmatrix} \text{P} & \text{—} & \text{PART} & \text{—} & \text{SPKR} \\ | & & & & \\ \text{N} & \text{—} & \text{NSG} & \text{—} & \text{DUAL} \\ | & & & & \\ \text{G} & \text{—} & \text{ANIM} & \text{—} & \text{F} \end{bmatrix}$$

For Campbell, features within categories are privative—they are either present or absent.

I follow Campbell in her organization of the φ-feature set along two dimensions as shown in (164). There are two important differences. First, as described above, the dominance relations in my structure are different than Campbell's. My hierarchy, shown above in (162), has [NUMBER] as the most dominant category, while [PERSON] is the most embedded.

Second, as noted in the introduction, I adopt the set of completely binary φ-features shown in (165), which is sufficient for the phenomenon dealt with in this dissertation.

(165) *Inventory of φ-features* *(Halle 1997; Harbour 2017; Nevins 2007)*

a. [±AUTHOR] – distinguishes 1st person (+) from 2nd and 3rd person (-)
b. [±PARTICIPANT] – distinguishes 1st and 2nd person (+) from 3rd person (-)
c. [±PLURAL] – distinguishes plural (+) from singular (-) number
d. [±ANIMATE] – distinguishes animates (+) from inanimates (-)
e. [±FEMININE] – distinguishes feminine (+) from masculine gender (-)

As we will see in section 3.5, the fully binary feature set in (165) is necessary to account for the existence of complex impoverishment, cases where φ-impoverishment in the presence of an Ā-feature is contingent on the presence of a specific φ-feature. Crucially, there is a symmetry in which features can condition complex impoverishment. Neutralization may be triggered by only 1st/2nd persons or by only 3rd person. Neutralization may also be triggered in the singular or in the plural. These facts can be accounted for if morphological rules such as impoverishment can make reference to binary feature values, like

[+PARTICIPANT] and [−PARTICIPANT] or [+PLURAL] and [−PLURAL]. On the other hand, if 1st/2nd person were characterized by the presence of a privative feature [PARTICIPANT], and 3rd person were characterized by the lack of that feature, it is unclear how a morphological rule would only be triggered in 3rd person contexts. The same holds for plural.

The binary features in (165) are arranged in entailment relationships within their given categories. The representation of various values for person, number, and gender that are given in (166), (167), and (168), respectively.

(166) *Person: first, second, and third*

a. *First*
[φ_P — +PART — +AUTH]

b. *Second*
[φ_P — +PART — −AUTH]

c. *Third*[5]
[φ_P — −PART — −AUTH]

(167) *Number: singular vs. plural*

a. *Singular*
[φ_N — −PL]

b. *Plural*
[φ_N — +PL]

(168) *Gender: masculine, feminine and inanimate*

a. *Masculine*
[φ_G — +ANIM — −FEM]

b. *Feminine*
[φ_G — +ANIM — +FEM]

c. *Inanimate*
[φ_G — −ANIM]

5. In (166c), I have represented 3rd person as being fully specified for both [−PARTICIPANT] and [−AUTHOR], instead of simply [−PARTICIPANT]. However, as shown by Ackema and Neeleman (2013), specifying 3rd person [−PARTICIPANT] and [−AUTHOR] allows one to capture of the syncretism of 2nd and 3rd person to the exclusion of 1st person in some languages. Harbour (2017) further argues that in some languages, 3rd person is actually [−PARTICIPANT, +AUTHOR], which allows him to capture syncretism of 1st and 3rd person to the exclusion of 2nd person. I will use the [−PARTICIPANT, -AUTHOR] specification throughout this work, unless a language offers compelling evidence for the [−PARTICIPANT, +AUTHOR] specification.

As an example of how these categories are combined into a complete φ-feature set, consider the representation of 2nd person masculine plural, given in (169).

(169) *Second person masculine plural*

$$\left[\begin{array}{lllll} \varphi_{\text{N}} & — & +\text{PL} & & \\ | & & & & \\ \varphi_{\text{G}} & — & +\text{ANIM} & — & -\text{FEM} \\ | & & & & \\ \varphi_{\text{P}} & — & +\text{PART} & — & -\text{AUTH} \end{array}\right]$$

In the next section, I show how this two-dimensional structure for φ-sets can be used to derive the Feature Impoverishment Hierarchy.

3.3.2 Impoverishment over rich φ-structures

As discussed in chapter 1, *impoverishment* is a widely assumed postsyntactic operation in Distributed Morphology (DM), originally proposed by Bonet (1991) and Noyer (1992), which deletes morphosyntactic features before Vocabulary Insertion takes place. By removing features before insertion, impoverishment may block the realization of an otherwise possible exponent if the requirements of the Subset Principle are no longer met. This leads to the insertion of a more underspecified exponent.

Ultimately, therefore, impoverishment rules lead to the *neutralization* of an otherwise existing contrast in a specific context. This is exactly the morphological effect that anti-agreement has on agreement paradigms. In the Ā-context, φ-agreement contrasts are neutralized. For this reason, impoverishment is the operation at the core of the theory of anti-agreement in this work—it captures the systematic neutralization of φ-feature contrasts in the context Ā-features.

In Bonet's (1991) and Noyer's (1992) original theories of impoverishment, the operation was conceived as a process of *delinking* nodes from a feature geometry or hierarchy. For Noyer (1992), agreement is hosted on Agr nodes that dominate trees of features. For example, an agreement node bearing 1st person plural features has the form shown below.

(170) *Agr node bearing [1pl]* (adapted from Noyer 1992)

$$\begin{array}{c} \text{Agr} \\ | \\ 1 \\ | \\ \text{pl} \end{array}$$

If a language has an impoverishment rule that deletes plural from a feature bundle also containing 1st person, Noyer proposes that this rule is actually delinking of the feature [pl] from the tree in (170), as shown in (171).

(171) *Impoverishment of [pl]* (adapted from Noyer 1992)

Agr
|
1
ǂ
~~pl~~

Noyer uses this system to capture the fact that certain features are deleted together. For instance, if the feature [dual] is dominated by [pl] in the language that has the rule in (171), then that rule will also neutralize the [dual] when it applies to a bundle containing that feature, as in (172).

(172) *Impoverishment of [dual] with delinking of [pl]* (adapted from Noyer 1992)

Agr
|
1
ǂ
~~pl~~
|
~~dual~~

In (172), the feature [pl] is delinked, deleting it. In the process of this delinking, all features dominated by [pl] are also deleted, and therefore, [dual] is also deleted.

For Noyer, the possible set of feature hierarchies is constrained by a universal hierarchy of morphosyntactic features (see example 157, above). Thus, the set of possible impoverishment rules was also constrained by the universal hierarchy. For example, given the feature structure in (172), above, no rule should exist that neutralizes a plural distinction *without* also neutralizing dual. The possible patterns of contextual syncretism allowed by the structure in (172) are given in table 3.5 on the next page.

	1SG	1DU	1PL	
Features	[1]	[1, pl, dual]	[1, pl]	
Baseline	A	B	C	
Possible	A	A	A	[pl, dual] → Ø
Possible	A	B	B	[dual] → Ø
Impossible	A	B	A	[pl] → Ø

Table 3.5: Possible syncretisms based on (172)

Table 3.5 imagines a paradigm in which 1st person singular, dual, and plural each have a unique exponent (A, B, and C in the 'Baseline' row) that realize the features in the 'Features' row. There are two possible impoverishment rules allowed under this system—one that deletes both [pl] and [dual] (as is the case for the delinking operation shown in 172, above), and one that deletes just [dual]. The impossible rule is one that deletes just [pl], without deleting [dual].

What is crucial in Noyer's conception of impoverishment is that the operation is constrained by the geometric properties of the feature sets that it operates over. For Noyer, impoverishment is not an operation that randomly deletes single features from a flat bundle. Instead, impoverishment deletes subsets of feature hierarchies, and the structure of possible feature hierarchies therefore constrains the set of possible impoverishment rules.

The kind of behavior predicted by these core properties of Noyer's system of impoverishment is exactly what we see in φ-impoverishment in the context of Ā-features. Recall that the FIH, repeated in here (173), constrains which φ-features may be deleted by a given impoverishment rule.

(173) *Feature Impoverishment Hierarchy (FIH)*
PERSON ≪ GENDER ≪ NUMBER

The FIH requires that an rule that deletes feature category [X] also delete all features belonging to categories to the left of [X] on the scale. In other words, if a rule deletes [GENDER], that rule must also delete [PERSON].

I follow Noyer and argue that φ-impoverishment should be constrained by the properties of the rich, two-dimensional φ-feature sets that I proposed in the previous section. I adopt the core of Noyer's system of impoverishment as operating over a structure that encodes dominance. When a node in a feature set is targeted for impoverishment, all nodes that entail that node and all nodes that are dominated by that node are also deleted. Consider what such a system looks like in terms of the abstract two-dimensional feature set in (174).

(174) *Abstract feature set*

$$\begin{bmatrix} \mathrm{A} & — & \alpha \\ | & & \\ \mathrm{B} & — & \beta \\ | & & \\ \mathrm{C} & — & \gamma \end{bmatrix}$$

I suggest that an impoverishment rule affecting the feature set in (174) is limited in the nodes it may target. Specifically, I propose that an impoverishment rule may target nodes A, B, or C, but may *not* target nodes α, β, or γ. In other words, there are three possible impoverishment rules given the feature set in (174). These are shown in (175a)–(175c).

(175) *Possible impoverishment rules based on (174)*

a. *Impoverishment targets A, B, C → α, β, and γ also deleted*

$$\left[\begin{array}{ll} \boxed{\begin{array}{c} \mathrm{A} \\ | \\ \mathrm{B} \\ | \\ \mathrm{C} \end{array}} & \begin{array}{l} — \alpha \\ \\ — \beta \\ \\ — \gamma \end{array} \end{array}\right] \rightarrow \varnothing$$

b. *Impoverishment targets A, B → β and γ also deleted*

$$\left[\begin{array}{ll} \begin{array}{c} \mathrm{A} \\ | \\ \boxed{\begin{array}{c} \mathrm{B} \\ | \\ \mathrm{C} \end{array}} \end{array} & \begin{array}{l} — \alpha \\ \\ — \beta \\ \\ — \gamma \end{array} \end{array}\right] \rightarrow [\, \mathrm{A} — \alpha \,]$$

c. *Impoverishment targets C → γ also deleted*

$$\begin{bmatrix} \mathrm{A} & — & \alpha \\ | & & \\ \mathrm{B} & — & \beta \\ | & & \\ \boxed{\mathrm{C}} & — & \gamma \end{bmatrix} \rightarrow \begin{bmatrix} \mathrm{A} & — & \alpha \\ | & & \\ \mathrm{B} & — & \beta \end{bmatrix}$$

The rules in (175) takes the geometry to the left of the arrow and maps to the geometry on the right of the arrow, deleting the boxed node in each case. When a given node is targeted for impoverishment, all nodes dominated by it and that entail it are deleted. For example, when node A is targeted by impoverishment in (175a), all other nodes in the feature set are deleted as well.

The idea that there are a limited number of nodes in a feature set that impoverishment can target is a stipulation, but one that is required to derive the FIH. In terms of the φ-sets that I proposed in the last section, the φ-DELETION CONSTRAINT in (176) will derive the FIH in its entirety.

(176) *The φ-deletion constraint (to be revised)*
An impoverishment rule that targets a φ-geometry may only delete φ-nodes.

Combined with the hierarchy of φ-feature categories in (177), the φ-deletion constraint immediately derives the FIH.

(177) *Hierarchy of φ-feature categories*

$$\begin{bmatrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{G}} \\ | \\ \varphi_{\text{P}} \end{bmatrix}$$

The fact that [NUMBER] cannot be deleted without deleting [PERSON] and [GENDER] simultaneously follows from the fact that [NUMBER] dominates [PERSON] and [GENDER] in (177). To neutralize number agreement without neutralizing person and gender agreement at the same time, the [NUMBER] node would have to be deleted without deleting the φ-nodes that it dominates, but this is impossible. The φ-deletion constraint also derives the fact that the FIH is stated over φ-feature *categories* and not individual φ-features. As we will see, φ-impoverishment rules in the context of Ā-features neutralize entire categories, and not individual feature contrasts from those categories.

Given the φ-deletion constraint, there are three possible impoverishment rules for the structure in (177), shown in (178).

(178) *Possible impoverishment rules based on (177)*

a. *Impoverishment of all φ-categories*

$$\begin{bmatrix} \boxed{\begin{matrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{G}} \\ | \\ \varphi_{\text{P}} \end{matrix}} \end{bmatrix} \rightarrow \varnothing$$

b. *Impoverishment of [PERSON] and [GENDER]*

$$\left[\begin{array}{c}\varphi_{\mathrm{N}} \\ | \\ \boxed{\begin{array}{c}\varphi_{\mathrm{G}} \\ | \\ \varphi_{\mathrm{P}}\end{array}}\end{array}\right] \longrightarrow [\ \varphi_{\mathrm{N}}\ ]$$

c. *Impoverishment of [PERSON]*

$$\left[\begin{array}{c}\varphi_{\mathrm{N}} \\ | \\ \varphi_{\mathrm{G}} \\ | \\ \boxed{\varphi_{\mathrm{P}}}\end{array}\right] \longrightarrow \left[\begin{array}{c}\varphi_{\mathrm{N}} \\ | \\ \varphi_{\mathrm{G}}\end{array}\right]$$

The rule in (178a) deletes all φ-nodes in the structure, neutralizing all agreement contrasts. The rule in (178b) deletes φ_{G}- and φ_{P}-nodes from the structure, thereby neutralizing [PERSON] and [GENDER]. Finally, the rule in (178c) deletes *only* the φ_{P}-node from the structure, thereby only neutralizing [PERSON] agreement.

The rule in (178a) is the type found in Abaza, where all φ-feature contrasts are neutralized. The rule I proposed in chapter 2 for Abaza, shown in (179), can be restated as (180).

(179) *Abaza φ-feature impoverishment (old)*

$$[\varphi] \rightarrow \varnothing \ /\ [\_\_, \bar{\mathrm{A}}, \mathrm{Agr}]$$

(180) *Abaza φ-feature impoverishment (new)*

$$\left[\begin{array}{c}\varphi_{\mathrm{N}} \\ | \\ \varphi_{\mathrm{G}} \\ | \\ \varphi_{\mathrm{P}}\end{array}\right] \rightarrow \varnothing \ /\ [\_\_, \bar{\mathrm{A}}, \mathrm{Agr}]$$

When a φ-set only contains [PERSON] and [NUMBER],[6] the set of φ-impoverishment rules will be limited to two, as shown in (181).

6. I assume that this type of φ-set would be present in languages that make no morphological gender distinction.

(181) *Possible impoverishment rules with person/number contrast only*

a. *Impoverishment of both φ-categories*

$$\left[\boxed{\begin{array}{c}\varphi_{\text{N}}\\ |\\ \varphi_{\text{P}}\end{array}}\right] \rightarrow \varnothing$$

b. *Impoverishment of [PERSON]*

$$\left[\begin{array}{c}\varphi_{\text{N}}\\ |\\ \boxed{\varphi_{\text{P}}}\end{array}\right] \rightarrow [\ \varphi_{\text{N}}\ ]$$

The rule in (181a) deletes both φ-nodes in the structure, neutralizing both [PERSON] and [NUMBER] agreement. On the other hand, the rule in (181b) deletes *only* the φ_{P}-node from the structure, thereby only neutralizing [PERSON] agreement; [NUMBER] agreement is left intact.

When a given φ-node in the hierarchy is deleted, all individual φ-features that entail that node are also deleted. Consider what this means for a φ-structure like that in (182), which represents a first person feminine plural.

(182) *First person feminine plural*

$$\left[\begin{array}{lllll}\varphi_{\text{N}} & \text{—} & +\text{PL} & & \\ | & & & & \\ \varphi_{\text{G}} & \text{—} & +\text{ANIM} & \text{—} & +\text{FEM} \\ | & & & & \\ \varphi_{\text{P}} & \text{—} & +\text{PART} & \text{—} & +\text{AUTH}\end{array}\right]$$

The rule that deletes the φ_{G}- and φ_{P}-nodes from the structure in (182) will also delete all features depend on those nodes, as shown in (183).

(183) *Impoverishment of [PERSON] and [GENDER] from (182)*

$$\left[\begin{array}{lllll}\varphi_{\text{N}} & \text{—} & +\text{PL} & & \\ | & & & & \\ \boxed{\varphi_{\text{G}}} & \text{—} & +\text{ANIM} & \text{—} & +\text{FEM} \\ | & & & & \\ \boxed{\varphi_{\text{P}}} & \text{—} & +\text{PART} & \text{—} & +\text{AUTH}\end{array}\right] \rightarrow [\ \varphi_{\text{N}} \text{ — } +\text{PL}\ ]$$

By deleting the boxed nodes in (183), impoverishment neutralizes [PERSON] and [GENDER]—the features contained within those categories can no longer be spelled out. However, the feature [+PL] is available for spell out, and, if there is an exponent that realizes that feature, it will be inserted.

It is worth taking a moment to reflect on how the FIH and the geometry and φ-deletion constraint apply outside of impoverishment in the context of Ā-features. Specifically, do these constraints universally apply to φ-impoverishment rules?

In fact, it is not difficult to find proposed φ-impoverishment rules that would be apparent counterexamples to the hierarchy above. As shown in table 3.6, in the Egyptian Arabic prefix conjugation distinguishes masculine and feminine gender in the 2nd and 3rd person plural, while the gender distinction is leveled in the plural. Crucially, however, all person distinctions are maintained in the plural.

	SG	PL
1	ʔa-ktib	ni-ktib
2M	ti-ktib	ti-ktib-u
2F	ti-ktib-i	ti-ktib-u
3M	yi-ktib	yi-ktib-u
3F	ti-ktib	yi-ktib-u

Table 3.6: Egyptian Arabic prefix conjugation (imperfective) (Noyer 1992:106)

Noyer (1992) proposes that this syncretism is due to an impoverishment rule which deletes [FEM] in the presence of *pl*, as shown below:[7]

(184) *Egyptian Arabic [FEM]-impoverishment*
[FEM] → Ø / [__, PL]

This pattern of leveling is a counterexample to the FIH: it is a neutralization of [GENDER] without concomitant neutralization of [PERSON]. This cannot be captured by the geometry I have proposed as φ-feature impoverishment is restricted by the φ-deletion constraint. If only φ-nodes can be deleted, then neutralization of gender agreement should always be accompanied by neutralization of person agreement.

While I leave the reconciliation of this disparate set of facts to further research, I would like to point out one difference between the rule that Noyer employs to capture the syncretism in table 3.6 and the rules that I have proposed. Namely, the neutralization of gender distinctions in Egyptian Arabic is triggered by a feature that is inherent to the paradigm in question, [PL]. That is, the rule in (184) captures a cooccurrence restriction on exponence of two features within a paradigm that is present *regardless of the larger structural context*. This is not the case for φ-impoverishment rules in the context of Ā-features. The trigger for such rules is only present if the wider structural context provides

7. As Noyer notes, it cannot be the case that 2nd/3rd person arguments never carry a gender feature, as nouns still distinguish feminine and masculine forms.

it. That is, anti-agreement syncretisms only surface in the context of a feature that is not part of the inherent specification of the noun.

I suggest that this is the key to understanding apparent violations of the φ-deletion constraint. Perhaps it is the case that the φ-deletion constraint only applies in the 'special case', and impoverishment rules like (184) are therefore not subject to it. A revised version of the φ-deletion constraint that could capture this is shown in (185):

(185) *The φ-deletion constraint* (revised)
An impoverishment rule that targets a φ-features in the context of [Ā] may only delete φ-nodes.

Given that the context of (184) does not contain [Ā], (185) will not apply to it. It is therefore free to delete features within φ-feature classes, and not just φ-nodes.

The difference between the stronger version of the φ-deletion constraint (in example 176, above) and the revised, weaker version is not crucial for the data dealt with in the rest of this dissertation. Therefore, I will assume the version in (185) from here on out. With that in mind, I now turn to how the system of impoverishment over rich, two-dimensional feature structures derives the attested set of anti-agreement patterns.

3.4 Partial φ-impoverishment

In this section, I present three case studies of languages that exhibit partial φ-impoverishment. In these languages, a subset of φ-features is deleted when φ-features and Ā-features occur on the same head. In section 3.4.1, I present data from Dinka, a language in which [PERSON] is impoverished, while [NUMBER] is unaffected. I then examine the Berber language Tashlhit in section 3.4.2. In Tashlhit, [PERSON] and [GENDER] are impoverished, but [NUMBER] is left intact. Finally, in section 3.4.3, I discuss anti-agreement in the Bantu language Lubukusu, in which [PERSON] is impoverished but [GENDER] and [NUMBER] are unaffected.

3.4.1 Dinka: impoverishment of [PERSON]

The first example of partial impoverishment comes from Dinka (ISO: `dks`), an Eastern Sudanic language spoken in South Sudan. Dinka is a V2 language—the highest verb or auxiliary moves to C and some constituent moves to Spec-CP via Ā-movement. As shown by van Urk (2015) and van Urk and Richards (2015), Ā-movement to Spec-CP is accompanied by φ-agreement on the second position verb/auxiliary in C. In this section, I will be concerned with the difference in φ-agreement paradigms found with two types of Ā-movement that target Spec-CP: topicalization and relativization.

Examples of topicalization are shown in (186). In all three examples, the DP in Spec-CP controls the form of the agreement prefix on the auxiliary in C. This prefix occurs regardless of whether the DP in Spec-CP is a topicalized subject, (186a), or a topicalized object, (186b)-(186c).[8]

(186) *Topic in Spec-CP triggers φ-agreement*

a. Yî̤in Ø-cé̤ mìir ṱî̤iŋ
you 2-AUX giraffe see
'You have seen a giraffe.' (van Urk 2015:102)

b. Mìir à-càa ṱî̤iŋ
giraffe 3SG-AUX.1SG see
'A giraffe, I have seen.' (van Urk 2015:103)

c. Mièεr à-càa ké ṱî̤iŋ
giraffes 3SG-AUX.1SG 3PL see
'Giraffes, I have seen.' (van Urk 2015:103)

Van Urk 2015 and Andersen (1991) refer to the forms found in (186) as the *declarative particle*. The particle agrees for person and number and is sensitive to tense (present vs. past). The full paradigm is shown in tables 3.7 and 3.8 (van Urk 2015:103).

	SG	PL
1/2	Ø-	Ø-
3	à-	áa-

Table 3.7: Dinka declarative present

	SG	PL
1/2	é-	é̤-kè-
3	é-	áa-kè-

Table 3.8: Dinka declarative past

A second agreement paradigm is found on the second position verb/auxiliary in interrogative and relative clauses, which van Urk refers to as the *interrogative particle*. The full interrogative paradigm is given in tables 3.9 and 3.10 (van Urk 2015:104) on the next page.

8. The auxiliaries in examples (186b) and (186b) also index the fact that the subject of the clause is 1st person singular. Van Urk shows that this type of agreement is suffixal and only targets pronominal subjects that have not moved to Spec-CP. He proposes that it involves a series of subject clitics that attach to T.

	SG	PL
1/2	Ø-	Ø-
3	Ø-	Ø-

Table 3.9: Dinka interrogative present

	SG	PL
1/2	é̤-	é̤-kè-
3	é̤-	é̤-kè-

Table 3.10: Dinka interrogative past

As can be seen from the tables, the lack of 3rd person *à-* and *áa-* in the interrogative paradigm means that all φ-contrasts are lost in the present tense. However, the exponent of plural in the past tense, *ké-*, is retained. Van Urk uses this fact to show that relative operators in Spec-CP control φ-agreement on the second position verb/auxiliary. This is shown in (187) with *wh*-clefts with a plural *wh*-phrase.

(187) *Agreement with relative operator in Spec-CP*

a. Yè kôɔc-kó$_i$ [$_{CP}$ Op$_i$ é̤-kè-thè̤t]?
be people-which.PL PST.INTER-PL-cook
'Which people were cooking?' (van Urk 2015:104)

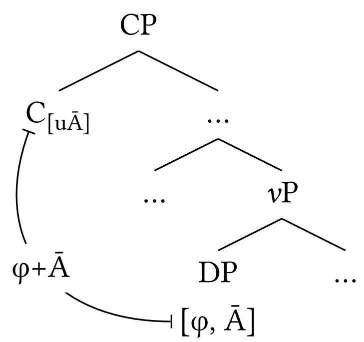
b. Yè kôɔc-kó$_i$ [$_{CP}$ Op$_i$ é̤-kè-cíi Áyèn ké gàam gàlàm]?
be people-which.PL PST.INTER-PL-aux Ayen 3PL give pen
'Which people had Ayen given a pen to?' (van Urk 2015:104)

Taking (186) and (187) together, all Ā-movement to Spec-CP in Dinka is accompanied by φ-agreement. However, the type of Ā-movement plays a crucial role in determining which φ-feature contrasts are overtly expressed on the second position verb/auxiliary. Topicalization triggers person and number agreement. Relativization lacks person agreement; only number agreement can be expressed on the verb (and even then, it can only be expressed in the past tense).

I argue that the lack of person agreement on C in the interrogative paradigm is an instance of partial impoverishment triggered by an Ā-feature [REL] involved in relativization. I take movement to Spec-CP to be driven by an Ā-probe on C. The presence of φ-agreement on C follows from the theory of Agree assumed here—the Ā-probe on C interacts with both [φ] and [Ā] on the DP that it finds and copies back both sets of features.[9] This is shown in (188).

9. My analysis departs somewhat from van Urk's (2015) analysis of the probe on C, which he takes to be a composite A/Ā-probe that searches for φ- and Ā-features simultaneously. For van Urk, this derives not only the fact that C shows φ-agreement in Dinka, but the fact that movement to Spec-CP displays mixed A/Ā-properties. I set aside the question of how exactly this characteristic of movement to Spec-CP in Dinka should be derived in the conception of Agree that I adopt here, as it is not crucial to the analysis of anti-agreement. However, I tentatively suggest that a composite A/Ā-probe could be simply be a probe that is satisfied only by a combination of φ and Ā-features.

(188) *Ā-probe on C copies [Ā] and [φ]*



The declarative and interrogative particles spell out the φ-features of the DP that is found by this probe and that subsequently moves to Spec-CP. The feature bundle on C after it has agreed with a relative operator is given in (189).

(189) *Form of Dinka C after agreeing with a relative operator*[10]

$$\left[\begin{array}{l}\varphi_{\text{N}} \\ \quad| \quad , \text{REL, PAST, AGR, C} \\ \varphi_{\text{P}}\end{array}\right]$$

I propose that before Vocabulary Insertion applies to the feature bundle in (189), φ-impoverishment is triggered and [PERSON] is deleted from the φ-bundle on C. The specific impoverishment rule is given in (190), below.

(190) *Dinka [PERSON]-impoverishment*

$$\left[\begin{array}{c}\varphi_{\text{N}} \\ | \\ \varphi_{\text{P}}\end{array}\right] \rightarrow [\ \varphi_{\text{N}}\ ]\ /\ [\_\_, \text{REL, C}]$$

The rule in (190) deletes the φ_{P}-node from the φ-bundle on C when C also bears the feature [REL]. Reference to the feature [REL] in this rule is essential. We have seen that impoverishment does not take place under topicalization. If we assume that topicalization involves a distinct Ā-feature, [TOP(IC)], impoverishment will not be triggered in those cases.

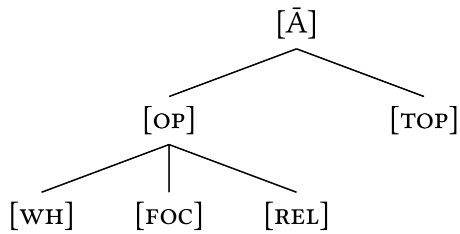
The fact that distinct Ā-features behave differently with regards to whether they trigger φ-impoverishment distinguishes Dinka from the cases of anti-agreement discussed in chapter 2. In those languages, it was sufficient to invoke only a generic feature [Ā] in the

10. Recall that the declarative and interrogative paradigms inflect for tense. Here I assume that there is a tense feature on C by the time it is spelled out. I remain agnostic as to how this feature ends up on C, however.

triggering of φ-impoverishment. For example, in Fiorentino, *wh*-questions, relativization, topicalization, and focus all trigger anti-agreement (see section 2.4).

As discussed in chapter 1, I assume that the class of Ā-features is internally complex and this class includes (at least) [wh], [foc], [rel], and [top]. Specifically, I adopt the feature hierarchy in (191), adapted from Aravind (2018:19).[11]

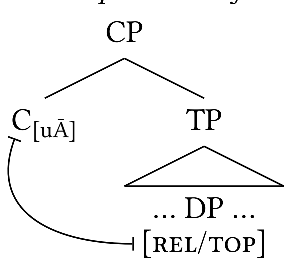
(191) *Ā-feature geometry*



In this model, the feature [foc] entails higher-level features like [op] (a subclass of operator features) and [Ā]. I assume that probes may be relativized to different places on this hierarchy. That is, a probe may be satisfied by an Ā-feature (represented [uĀ]), or a feature lower down on the hierarchy, like [op] (represented [uop]).[12]

I follow van Urk (2015) in assuming that C in Dinka carries a flat Ā-probe ([uĀ]) that is satisfied by [top] or [rel], as shown in (192).

(192) *Flat Ā-probe satisfied by both [rel] and [top]*



Under Van Urk's analysis, both relativization and topicalization involve the *same probe* on C triggering movement to Spec-CP—the only difference in the dependencies is the Ā-feature that the moving DP carries.

Crucially, these two Ā-dependencies *have the exact same syntax*, but differ in terms of agreement. This is accounted for in a straightforward way in the current theory. When the Ā-probe on C finds a DP bearing [top], it will copy back [top] and [φ] (as shown

11. Aravind uses such a feature hierarchy to capture relativized probing effects in Malayam.

12. Recall from section 1.4.1 that I assume that an XP that bears a feature [F] in (191) also bears all features that [F] entails. This means that an Ā-probe that is satisfied by any feature [F] entails will be satisfied by a DP bearing [F].

in 188). No φ-features deletion takes place, because [TOP] does not trigger the impoverishment. On the other hand, when the Ā-probe on C finds a DP bearing [REL], it will copy back [REL] and [φ]. In the morphology, the presence of [REL] on C will trigger φ-impoverishment, leading to partial anti-agreement.

After impoverishment takes place, the remaining features on C are spelled out as a prefix on the second position verb/auxiliary. I propose the VIs shown in (193) to account for the declarative and interrogative paradigms.

(193) *Dinka C prefix VIs*

a. à- ↔ [−PART, AGR]

b. áa- ↔ [−PART, +PL, AGR]

c. ké- ↔ [+PL, AGR] / __ [PAST]

d. Ø ↔ [AGR]

e. é- ↔ [PAST]

f. é̤- ↔ [PAST] / __ [REL]

Morphologically, 3rd person is more specified than 1st or 2nd in Dinka; there are VIs that overtly realize 3rd person (referencing the feature [−PART]), while there is no dedicated VI that realizes 1st or 2nd person (referencing the feature [+PART]). Instead, 1st and 2nd person are spelled as the elsewhere morpheme Ø, which I here propose spells out the feature [AGR]. Crucially, it is an elsewhere exponent that surfaces for 3rd person in the interrogative present tense, precisely where impoverishment has removed [−PART] by deleting the φ_G-node in the φ-geometry. The loss of [−PART] in these contexts blocks the insertion of either 3rd person singular *à-* or 3rd person plural *áa-*.

The loss of 3rd person singular *à-* and 3rd person plural *áa-* in the interrogative paradigm therefore provides evidence for the fully binary approach to φ-features that I have adopted here. If 3rd person were the *lack* of a feature, there would be no way to make this distinction. To see why, consider a reanalysis of the VIs in (193) in a feature system in which 1st and 2nd person are specified for a (privative) feature [PART] and 3rd persons lack this feature altogether.[13]

(194) *Dinka C prefix VIs (privative analysis)*

a. à- ↔ [AGR]

b. áa- ↔ [PL, AGR]

c. ké- ↔ [PL, AGR] / __ [PAST]

d. Ø ↔ [PART, AGR]

13. I do not include the past tense morphemes *é-/é̤-* in (194) because they are not relevant to the point at hand.

In the privative system, we are forced to conclude that the 3rd person *à-* is the most underspecified agreement VI, spelling out only [Agr], and the Ø that occurs with 1st and 2nd person subjects spells out the feature [PART]. But this leaves unexplained why it is the Ø morpheme that surfaces in cases of anti-agreement. To derive this fact, we would have to posit a second Ø-morpheme that realizes the [REL] feature present in anti-agreement contexts.

(195) *Dinka anti-agreement Ø in a privative analysis*
Ø ↔ [REL, AGR]

In a privative feature system, then, we lose the connection because underspecification in the context of an Ā-feature and the appearance of Ø agreement in Dinka.

Returning to the current analysis, the behavior of plural agreement in the past tense is also predicted by the VIs in (193). The plural prefix *ké-* is specified as only being inserted in the past tense.[14] Because the φ_N node is not deleted by the impoverishment rule in (190), the [+PL] feature that *ké-* realizes is still available in the morphology. Thus, we expect *ké-* to surface in the interrogative past tense, as it does.

Dinka presents a first example of how partial anti-agreement arises from the interaction of partial φ-impoverishment and normal Vocabulary Insertion. We do not need to specify anything special about the morphemes that spell out φ-agreement on C to model partial anti-agreement in Dinka. All that we need do is specify an impoverishment rule that deletes a subset of φ-features, in this case just [PERSON] from a φ-bundle that coexists with the feature [REL] on C. From there, Vocabulary Insertion proceeds normally.

3.4.2 Tashlhit: impoverishment of [PERSON, GENDER]

The second case study of partial anti-agreement comes from the Berber language Tashlhit (ISO: `shi`, Morocco). The basic properties of agreement and anti-agreement are the same in Tashlhit and Tarifit (see section 2.3). In clauses without subject extraction, Tashlhit verbs agree with their subject for person, gender, and number. The full agreement paradigm is given in table 3.11 on the next page.

14. More specifically, *ké-* is only inserted in the context of the feature [PAST] on C

	SG	PL
1	V-ɣ	n-V
2M	t-V-t	t-V-m
2F	t-V-t	t-V-mt
3M	i-V	V-n
3F	t-V	V-nt

Table 3.11: Tashlhit φ-agreement (Applegate 1958:27)

There is anti-agreement in clauses with subject extraction. Instead of the normal subject agreement paradigm, the verb appears in the participle form and only agrees for number. Example (196a) shows that the expected first person form is not found in a subject focus construction with a 1st person singular subject. Examples (196b)-(196e) show that gender agreement is lost.

(196) *Tashlhit anti-agreement*

a. nekki a **i**-kerz-**en**
1SG C_{FOC} 3SG.M-plow-PTCP
'It's me who plowed' (Aspinon 1953:163)

b. argaz lli **i**-kerz-**en** iger
man C_{REL} 3SG.M-plow-PTCP field
'the man who has worked the field' (Aspinon 1953:168)

c. irgazen lli kerz-**nin** igran
men C_{REL} plow-PTCP.PL fields
'the men who have worked the fields' (Aspinon 1953:168)

d. tamɣart lli **y**-ut-**en** afruh
woman C_{REL} 3SG.M-hit-PTCP child
'the woman who hit the child' (Aspinon 1953:168)

e. timɣarin lli ut-**nin** afruh
women C_{REL} hit-PTCP.PL child
'the women who hit the child' (Aspinon 1953:168)

As we saw in Tarifit, the participle found with singular Ā-subjects is formed with the prefix *i-*, identical to the 3rd person masculine singular prefix, and a suffix *-n*.[15] Unlike in

15. In (196a), (196b), and (196e) the participle suffix appears as *-en* because of schwa epenthesis. Likewise, the prefix *i-* becomes a glide before the initial vowel of the verb stem *ut* in (196d).

Tarifit, however, the participle form found with plural Ā-subjects in Tashlhit differs from the participle found with singular subjects. Specifically, the plural participle form lacks a prefix and terminates in *-nin*.

There is reason to believe that the plural participle ending *-nin* should be analyzed as a single morpheme and not further decomposed into the suffix *-n*, found in the singular participle, plus a plural suffix *-in*. The evidence comes from variation in participle forms in different aspects, as shown in table 3.12 at the top of the next page.

	SG	PL
AORIST	i-V	i-V
PERFECTIVE	i-V-n	V-nin
IMPERFECTIVE	i-V-n	V-nin

Table 3.12: Tashlhit participle (adapted from Drouin 1996:255)

Recall from the discussion of anti-agreement in Tarifit in section 2.3 that the form of the participle may vary with aspect. In Tarifit, the participle suffix *-n* is absent in the aorist and present in other aspects. In Tashlhit the situation is the same, with the addition of plural marking on the participle suffix. In the aorist, participle marking consists only of the prefix *i-*, while in the perfective and imperfective, participle marking also involves suffixal marking, either *-n* or *-nin*, depending on the number of the subject. Crucially, plural marking is dependent on the presence of the participle suffix. That is, aorist verbs do not take a participle suffix in Ā-subject cases, nor do they make a number distinction. If *-in* were a plural marking suffix separate from *-n*, then we would expect *-in* to surface in the aorist with a plural extracted subject. On the other hand, if the sequence /nin/ is in plural participles is treated as a single suffix, the distribution of plural marking in different aspects is derived straightforwardly.

With this understanding in place, I extend my analysis of Tarifit anti-agreement to Tashlhit. First, I assume that subject agreement originates as a probe on the head Asp. When Asp agrees with an Ā-extracted subject, it will have the structure in (197).

(197) *Form of Tashlhit Asp after agreeing with Ā-extracted subject*

$$\left[\begin{array}{l} \varphi_{\textsc{n}} \\ \quad | \\ \varphi_{\textsc{g}}\text{ , }\bar{\text{A}}\text{, }\textsc{Agr}\text{, }\textsc{Asp} \\ \quad | \\ \varphi_{\textsc{p}} \end{array}\right]$$

As in Tarifit, the φ-features on Asp undergo impoverishment when they coexist with an Ā-feature. In Tashlhit, impoverishment is partial—only [PERSON] and [GENDER] are deleted. A rule is given in (198).

(198) *Tashlhit [PERSON, GENDER]-impoverishment*

$$\begin{bmatrix} \varphi_{\mathrm{N}} \\ | \\ \varphi_{\mathrm{G}} \\ | \\ \varphi_{\mathrm{P}} \end{bmatrix} \rightarrow [\ \varphi_{\mathrm{N}}\ ]\ /\ [\_\_, \bar{\mathrm{A}}, \mathrm{Agr}]$$

The rule in (198) deletes the φ_{P}- and φ_{G}-nodes, thereby suppressing [GENDER] and [PERSON] exponence. This leaves only [NUMBER] features and the [Ā] to be realized.

Three vocabulary items are needed for the morphological analysis of the Tashlhit participle: *i-*, *-n*, and *-nin*. They are shown in (199)–(201). Here, Asp_1 stands for perfective and imperfective aspectual heads.

(199) *Tashlhit default agreement*

i- ↔ [Agr]

(200) *Tashlhit participle suffix*

-n ↔ [Ā] / __ [ASP_1]

(201) *Tashlhit plural participle suffix*

-nin ↔ [+PL, Agr, Ā] / __ [ASP_1]

As I did for Tarifit, I propose that *i-* is default agreement, and spells out the [Agr] feature on Asp when there is no other eligible VI. The two suffixes, *-n* and *-nin*, spell out the Ā-feature in the context of a certain Asp head or certain aspectual features (i.e., those found in the imperfective and perfective aspects, but not in the aorist). Here, I do not take a specific position on what these features should be. Instead, I have referred to this aspectual head as Asp_1 for convenience. The feature set associated with the plural participle suffix *-nin* in (201) blocks the insertion of the default agreement prefix *i-* when Asp has [+PL]. This is because the VI for *-nin* spells out both [Ā] and [Agr], whereas the VI for *-n* only realizes [Agr]. By the Subset Principle, therefore, *-nin* is inserted over *-n*.

Thus, as we see, the Tashlhit anti-agreement is straightforwardly accounted for under the same type of analysis of the Berber participle that I developed for Tarifit. Unlike Tarifit, however, the Tashlhit participle does actually vary with a subset of the φ-features of the subject. Here, this is modeled by partial φ-impoverishment and the spelling out of the remaining number feature if that feature is [+PL].

3.4.3 Lubukusu: Impoverishment of [PERSON]

The most extensive previous discussion of partial anti-agreement in the literature is found in studies on Bantu languages.[16] Henderson (2013) shows that anti-agreement in many Bantu languages involves the suppression of person agreement, while gender and number agreement (in the form of noun class agreement) is left intact. Diercks (2010) provides an in-depth study of this pattern in Lubukusu. In this section, I adapt Diercks's analysis of the Lubukusu facts to the theory of anti-agreement as impoverishment. I first present the basic Lubukusu subject-verb agreement facts and their analysis in 3.4.3.1. I then turn to the anti-agreement facts and their analysis in section 3.4.3.2

3.4.3.1 Subject agreement in Lubukusu

Bantu languages are famous for their extensive noun class systems, and Lubukusu (ISO: buk, Kenya) is no different. Every noun is marked as belonging to a specific noun class with a prefix, and classes are numbered in consecutive pairings in which odd numbers (1, 3, 5, and so on) represent the singular and even numbers (2, 4, 6, and so on) represent the plural. As an example, class 2 is the plural of class 1.

I follow Diercks in adopting Carstens's (1991; 2010) analysis of Bantu noun class. Carstens argues that there is no primitive 'class' feature. Instead gender and number features are distinct at the formal level, and an exponent of noun class is the realization of these features in a single portmanteau morpheme. Each singular/plural pairing of noun classes (such as 1/2 or 3/4) is seen as constituting the same abstract gender. Carstens labels gender features with letters.

(202) *Bantu genders for classes 1-10* (Carstens 1991:18)

a. Gender A: classes 1 (singular) and 2 (plural)
b. Gender B: classes 3 (singular) and 4 (plural)
c. Gender C: classes 5 (singular) and 6 (plural)
d. Gender D: classes 7 (singular) and 8 (plural)
e. Gender E: classes 9 (singular) and 10 (plural)

Note that Carstens does not assume a binary valued feature system for gender. Instead, each abstract gender is a single, privative feature. This differs from the analysis of the masculine/feminine distinction which I have used throughout this work, which assumes that masculine is [−FEM] and feminine is [+FEM] (cf. Kramer 2015). I adopt Carstens'

16. Anti-agreement is widespread in the Bantu language family, and the phenomenon has attracted a fair amount of attention in the literature on Bantu agreement, both from a comparative perspective (Henderson 2013; Cheng 2006; Zentz 2015) and from the perspective of individual languages (Schneider-Zioga 1995, 2000, 2007 for Kinande; Wasike 2006 and Diercks 2009, 2010 for Lubukusu).

system here without change, and assume that both privative and binary gender features exist.

Verbs in Lubukusu agree with their subjects for noun class, as shown in (203).

(203) *Class agreement*

a. **omwaana** **a**-a-tim-a
cl1.child cl1.sbj-pst-run-fv
'The child ran.' (Wasike 2006:236)

b. **sisiindu** **sy**-a-kwa
cl7.thing cl7.sbj-pst-fall
'The thing fell.' (Diercks 2010:117)

There are also a set of subject agreement prefixes on for 1st and 2nd person subjects, exemplified with the 1st person singular subject prefix *n-*. 3rd person pronominal subjects take the class agreement prefix of their referent, or if they are human, take class 1 agreement in the singular and class 2 agreement in the plural. This is shown in (205).

(204) *1st person singular subject agreement*
n-a-bona omuseecha oweba endika
1sg-pst-see cl1.man cl1.C.cl1.sbj.stole cl9.bicycle
'I saw the man who stole the bicycle.' (Diercks 2010:115)

(205) *Class 1/2 subject agreement*

a. **a**-la-mu-kulila
cl1.sbj-pst-cl1.obj-buy.for
'He/she will buy for him/her' (Wasike 2006:11)

b. **ba**-a-si-kula
cl1.sbj-pst-cl7.obj-buy
'They bought it' (Wasike 2006:9)

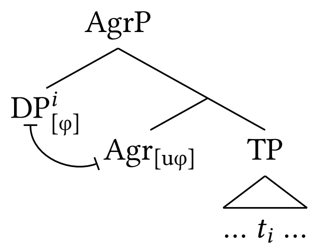
The Lubukusu subject agreement paradigm for 1st and 2nd person subjects and class 1 and 2 is given in table 3.13.
In addition to the subject agreement prefixes in table 3.13, there are agreement prefixes for each other class, though I have left these out for reasons of brevity.

Following Diercks (2010), I assume subject agreement is hosted by a dedicated projection of above TP, which I designate Agr. Also following him, I assume that the subject moves to Spec-AgrP when it agrees with Agr. This analysis is shown in (206).

	sg	pl
1	n-	khu-
2	o-	mu-
3, cl1/cl2	a-	ba-

Table 3.13: Lubukusu subject agreement (partial list; (Diercks 2010):141)

(206) *Syntax of Lubukusu subject agreement*



For Diercks, this is Rizzi and Shlonsky's (2007) SubjP, a projection which hosts the clausal subject in their Criterial Freezing framework (see section 1.3.2.3).[17]

Diercks argues that the φ-probe on Agr agrees for person, gender, and number, and that all DPs, including 1st and 2nd person pronouns, are specified for all of these features. He assumes that 1st and 2nd person are of abstract gender A, the same gender that Carstens's posits for classes 1 and 2.[18] Table 3.14 presents his analysis of the φ-feature specification for a given person/number or class adapted to my feature system.

	singular	plural
1st	[+part, +auth, A, -pl]	[+part, +auth, A, +pl]
2nd	[+part, -auth, A, -pl]	[+part, -auth, A, +pl]
3rd & cl1/2	[−part, -auth, A, -pl]	[−part, -auth, A, +pl]
cl3/4	[−part, -auth, B, -pl]	[−part, -auth, B, +pl]
	…	…
cl7/8	[−part, -auth, D, -pl]	[−part, -auth, D, +pl]

Table 3.14: Diercks's (2010:137) analysis of φ-bundles in Lubukusu (partial list)

17. I have chosen to refer to this projection as AgrP rather than SubjP in order to avoid confusion with the criterial projection head used in Rizzi and Shlonsky's work.
18. In almost all Bantu languages, classes 1 and 2 contain only human nouns (Katamba 2003).

These are the values that the φ-probe on Agr finds and copies when it agrees with the subject DP. For example, when the subject is 1st person singular, Agr will have the following form:

(207) *Form of Lubukusu Agr after agreeing with a 1SG subject*

$$\left[\begin{array}{llll} \varphi_{\text{N}} & \text{— } -\text{PL} & & \\ \mid & & & \\ \varphi_{\text{G}} & \text{— A} & & ,\ \text{AGR} \\ \mid & & & \\ \varphi_{\text{P}} & \text{— +PART — +AUTH} & & \end{array}\right]$$

With this basic analysis in mind, I now turn to the morphological effects of subject extraction in Lubukusu.

3.4.3.2 Lubukusu anti-agreement

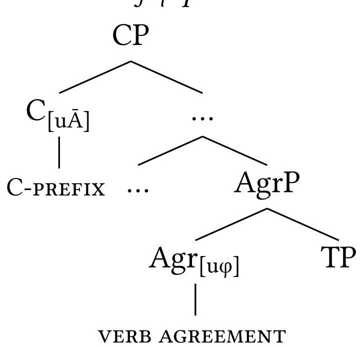
Subject extraction in Lubukusu triggers a number of effects. First, in addition to the normal subject agreement prefix, the verb takes a second prefix which indexes (at least some of) the φ-features of the extracted subject. An example of this additional prefix is shown in (208) for a class 7 extracted subject.

(208) *Extracted subjects require an additional agreeing prefix*

sisiindu$_i$ **si**$_i$-**sy**$_i$-a-kwa
CL7.thing CL7.C-CL7.SBJ-PST-fall
'the thing which fell' (Diercks 2010:117)

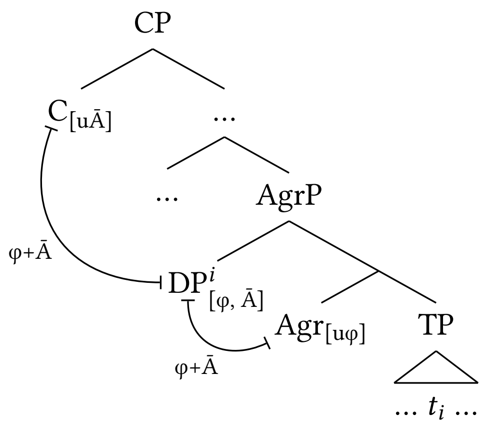
Diercks (2010) analyzes this prefix as an agreeing complementizer and refers to the prefix for this reason as the C-prefix. I follow this analysis and assume that the C-prefix spells out φ-features on the C head involved in Ā-extraction, as shown in (209).

(209) *Location of φ-probes in Lubukusu subject extraction* (based on Diercks 2010)



The presence of φ-agreement on C follows from the theory of Agree assumed here—when the Ā-probe on C finds the subject DP in Spec-AgrP, it will interact with both [φ] and [Ā] on that DP and copy back both sets of features. This is shown in (210).

(210) *Agree relations in Lubukusu subject extraction*



As shown above, even though Agr and C host different probes, [uφ] and [uĀ], respectively, both probes will copy back [φ] and [Ā] from the subject DP.

The second morphological effect of subject extraction is anti-agreement. Extraction of a class 1 subject requires replacement of the normal subject marker *a-* with the morpheme *o-*. The C-prefix is also *o-* in these cases. An example with a subject *wh*-question is found in (211).[19]

(211) Wh-*question with class 1 subject*

naanu	o-**w**-a-tim-a
cl1.who	cl1.C-cl1.aa-pst-run-fv

'Who ran?' (Wasike 2006:236)

Extraction also affects the agreement pattern found with 1st and 2nd person subjects. As shown in (212), when a 1st person singular or 2nd person singular subject is focused, the verb takes the same agreement pattern as the class 1 subject in the *wh*-question in (211).

(212) *Subject extraction of 1sg and 2sg*

a.

Nise	o-**w**-onak-e	kumulyango	kuno
1sg	cl1.C-cl1.aa-damage-pst	cl3.door	cl3.dem

'It is I who damaged the door' (Diercks 2010:133)

19. In (211), the normal subject prefix is realized as [w] because of a normal phonological process of hiatus resolution. The [o] preceding it is the agreeing complementizer.

b. Niwe o-**w**-onak-e kumulyango kuno
2sg CL1.C-CL1.AA-damage-PST CL3.door CL3.DEM
'It is you(SG) who damaged the door' (Diercks 2010:133)

Instead of the verb occurring with expected agreement prefixes in (212), the 1st and 2nd person singular subjects control the agreement prefix *o-* on the verb. The C-prefix is also realized as *o-*. With 1st and 2nd person plural extracted subjects the verb must bear class 2 agreement. This can be seen in (213), where the agreement prefix and the C-prefix take the class 2 form *ba-*.

(213) *Subject extraction of 1PL and 2PL*

a. Nifwe ba-**b**-onak-e kumulyango kuno
1PL Cl2.C-CL2.SBJ-damage-PST CL3.door CL3.DEM
'It is us who damaged the door' (Diercks 2010:133)

b. Ninywe ba-**b**-onak-e kumulyango kuno
2PL Cl2.C-CL2.SBJ-damage-PST CL3.door CL3.DEM
'It is you(PL) who damaged the door' (Diercks 2010:133)

The effect of subject extraction on the form of subject agreement is seen clearly by comparing table 3.15 and table 3.16. Table 3.15 shows subject agreement in contexts without subject extraction, while table 3.16 shows the agreement pattern with subjects that have been extracted, including the form of the C-prefix

	SG	PL
1st	n-	khu-
2nd	o-	mu-
3rd, CL1/2	a-	ba-

Table 3.15: Lubukusu agreement with in situ subject (Diercks 2010:141)

	SG	PL
1st	o-o-	ba-ba-
2nd	o-o-	ba-ba-
3rd, CL1/2	o-o-	ba-ba-

Table 3.16: Lubukusu agreement with extracted subject (Diercks 2010:141)

Following Henderson (2007), Diercks argues that the leveling pattern in table 3.16 is due to the neutralization of person agreement in subject extraction contexts. The evidence for this is extremely clear in the case of plural extracted subjects, where the 3rd person plural exponent *ba-* is generalized to the 1st person and 2nd person cells of the paradigm. However, the leveling of person is less clear when it comes to the singular half of the paradigm, at least at first. This is because the prefix that generalizes to the rest of the paradigm is not the 3rd person singular morpheme *a-*, but the prefix *o-*, which marks 2nd person singular in the normal agreement context.

Diercks's key insight is that *o-* is actually more underspecified than *a-* with regards to the features it expresses. To see what I mean by this, consider table 3.17, where I present Diercks's morphological analysis of the agreement prefixes adapted to the current φ-feature system.

	VI		Feature specification
Fully specified	n-	↔	[+PART, +AUTH, A, -PL, Agr]
	khu-	↔	[+PART, +AUTH, A, +PL, Agr]
	mu-	↔	[+PART, -AUTH, A, +PL, Agr]
	a-	↔	[-PART, -AUTH, A, -PL, Agr]
Underspecified	o-	↔	[A, -PL, Agr]
	ba-	↔	[A, -PL, Agr]

Table 3.17: Lubukusu Agreement VIs (adapted from Diercks 2010:137)

There are two sets of VIs in table 3.17. The first set in the top half of the table are fully specified for person, gender, and number features. The other class VIs, *o-* and *ba-* in the table, is underspecified for person—these markers do not spell out either [±PARTICIPANT] or [±AUTHOR], but instead just spell out gender and number (that is, they spell out just noun class).

In combination with partial impoverishment of [PERSON], this analysis predicts the behavior of *o-* and *ba-* in extraction contexts. I propose that the partial φ-impoverishment rule in (214) is active in Lubukusu.

(214) *Lubukusu [PERSON]-impoverishment*

$$\begin{bmatrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{G}} \\ | \\ \varphi_{\text{P}} \end{bmatrix} \rightarrow \begin{bmatrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{G}} \end{bmatrix} \ / \ [\_\_, \bar{\text{A}}, \text{Agr}]$$

This rule deletes the φ_{P}-node from a φ-bundle that occurs within a C or Agr head that also contains an Ā-feature. Evidence that the impoverishment rule targets both C and Agr comes from the fact that these prefixes are always identical in the subject extraction context, as seen in table 3.16. I assume that impoverishment targets both heads because both heads agree with a subject in this context, receiving both [φ] and [Ā].

(215) *Lubukusu: impoverishment applies to C and Agr*

IMPOVERISHMENT

$[_{\text{CP}}\ \text{C}_{[\text{u}\varphi]}\ \ [_{\text{AgrP}}\ \text{Agr}_{[\text{u}\varphi]}\ \ [\ \ldots\ \text{DP}_{[\varphi,\ \text{FOC}]}\ \ldots\ ]]]$

AGREE FOR [φ, Ā]

Consider how this analysis derives the distribution of *o-* in the two agreement contexts under discussion. In the normal agreement context, without subject extraction, *o-* will only be inserted into one cell in the paradigm. Specifically, it will be inserted into the 2nd person singular cell because there is no other VI that can potentially spell out 2nd person singular; such a morpheme simply does not exist in the Lubukusu paradigm.

In the subject extraction context, [PERSON] agreement is impoverished, and therefore, none of the fully specified VIs in table 3.17 can be inserted. This is because those VIs realize person features, but there are no person features left over after impoverishment to be realized. For the singular cells of the paradigm, the only VI that can be inserted is *o-*, because it is underspecified for [PERSON]. Likewise, because *ba-* is also underspecified for [PERSON] features, it generalizes to the plural cells of the paradigm.

An important aspect of this analysis is that it accounts for the fact that anti-agreement is limited to subjects of gender A in Lubukusu, and Bantu more generally. Notice, for instance that class 7 subject agreement does not differ between the normal agreement context with subject Ā-movement, and the subject extraction context, (216).

(216) *Class 7 subject agreement does not alternate with extraction*

a. *Declarative clause*
sisiindu$_i$ **sy**$_i$-a-kwa
CL7.thing CL7.SBJ-PST-fall
'the thing fell' (Diercks 2010:117)

b. *Subject relative clause*
sisiindu$_i$ **si**$_i$-**sy**$_i$-a-kwa
CL7.thing CL7.C-CL7.SBJ-PST-fall
'the thing which fell' (Diercks 2010:117)

In (216a) class 7 subject agreement is marked with the prefix *si-*. This is also the shape of the subject prefix in the subject relative clause in (216b). Diercks proposes that this is because these prefixes are also underspecified, spelling out only gender and number, as in (217).

(217) *Class 7 subject agreement prefix*
si- ↔ [D, -PL]

Under this analysis, the prefix *si-* is specified only as being singular ([−PL]) and of abstract gender D (see example 202 above). Deletion of [PERSON] features from a φ-probe will not affect the ability of *si-* to be inserted because it never spells out those features in the first place.

The pattern of partial anti-agreement found in Lubukusu is widespread across Bantu. Diercks (2010) shows that it is present in Luganda (ISO: `lug`, Uganda; Ashton et al. 1954) and Kilega (ISO: `lgm`, Democratic Republic of the Congo; Kinyalolo, Kasangati 1991), while Henderson (2007, 2013) shows that it is present in Bemba (ISO: `bem`, Zambia).

3.5 Complex impoverishment

The previous section examined cases of partial impoverishment in which φ-feature deletion is uniform across the entire agreement paradigm. In this section I present cases of *complex impoverishment* where the application of φ-impoverishment is conditioned by the presence of a specific φ-feature in the feature geometry. An example of this phenomenon comes from the behavior of focused subjects in Ben Tey, a Dogon language of Mali. Consider the pair of examples in (218).

(218) *Complex impoverishment in Ben Tey*

a. î:=m̀ lò-rì-(*:ẁ)
1PL=FOC go-PFV.NEG-1PL
'It was we who did not go.' (Heath 2013:209)

b. û:=m̀ lò-Ø
2PL=FOC go.PFV-3SG
'It's you.PL who went.' (Heath 2013:208)

c. bû:=m̀ ló-m̀-n-*(ɛ́)
3PL=FOC go-IPFV-NEG-3PL
'It's they who will not go.' (Heath 2013:209)

The important observation is that the 1st and 2nd person subjects behave differently than the 3rd person subject in this context. We see that neither the focused 1st person plural subject in (218a) nor the focused 2nd person plural subject in (218b) can control person/number agreement on the verb, while the focused 3rd person plural subject in (218c) must control agreement on the verb. I argue that this is difference comes about because φ-impoverishment in Ben Tey is contingent on the presence of the feature [+PART] in the affected φ-bundle. Because 1st and 2nd persons are [+PART], while 3rd person is [−PART], impoverishment is triggered when a focused subject is 1st or 2nd person, but no impoverishment takes place when the subject is 3rd person.

We will see that complex impoverishment is not always partial. Indeed, there are examples of both *total complex impoverishment*, where the presence of a specific φ-feature triggers deletion of itself and all other φ-features in the geometry, and *partial complex impoverishment*, where the presence of a specific φ-feature conditions partial deletion. An abstract representation of total complex impoverishment in a paradigm which contrasts two features, [PERSON] and [GENDER], is given in table 3.18, while an abstract example of partial complex impoverishment in the same type of paradigm can be seen in table 3.19.

	SG	PL
1	A	A
2	A	A
3	A	B

Table 3.18: Total Complex Impoverishment

	SG	PL
1	A	B
2	A	C
3	A	D

Table 3.19: Partial Complex Impoverishment

In table 3.18, all cells in the paradigm are leveled to a single form except in the 3rd person plural. This is the pattern observed in Ben Tey—impoverishment is contingent on the presence of [+PART] in the targeted feature bundle. In table 3.19, [PERSON] agreement is leveled, but only in the singular cells of the paradigm. In other words, impoverishment is contingent on the presence of [−PL] in the targeted feature bundle.

I begin the case studies with a close examination of the Ben Tey facts in section 3.5.1. In section 3.5.2, I return to Fiorentino, a northern Italian dialect that was first examined in section 2.4. As was shown in that section, anti-agreement in Fiorentino does not affect 1st or 2nd person subjects. I argue that this is because impoverishment in Fiorentino is conditioned by [−participant]. I show that impoverishment conditioned by [−part] is also found in the Bantu language Kikuyu in section 3.5.3. I return to Lubukusu in section 3.5.4 and discuss a second pattern of leveling found in the language, showing that this pattern of leveling can be described as complex impoverishment conditioned by [−plural]. In section 3.5.5, I discuss conditional impoverishment of [gender] in two Berber languages, Ghadamès and Ouargli.

The picture that emerges from these case studies is that there is symmetry in just features can condition complex impoverishment. Leveling may be triggered by only 1st/2nd persons or by only 3rd person. Leveling may also be triggered in the singular or in the plural. In other words, both [+participant] and [−participant] are equally as capable of triggering impoverishment, as are [+plural] and [−plural]. This is not a surprise in the current theory. We have seen that both values of the φ-features [±participant] and [±plural], are active in the morphology—Vocabulary Insertion is capable of referring to both the positive and negative version of a given feature. Thus, we should expect morphological rules like impoverishment to be able to refer to these features equally as well.

3.5.1 Ben Tey: impoverishment conditioned by [+participant]

The first case of complex impoverishment comes from Ben Tey (ISO: `dbt`), a Dogon language spoken in Mali. Iemmolo and Moran (2014) show that several other Dogon languages exhibit anti-agreement in subject focus contexts. I have confirmed their findings for Jamsay (ISO: `djm`, Mali; Heath 2008), Bunoge (ISO: `dgb`, Mali; Heath 2012), and Najamba (ISO: `dbu`, Mali; Heath 2011). Tommo So (ISO: `dto`, Mali) also shows anti-agreement in subject focus constructions (McPherson 2013). However, Ben Tey is the only one of these languages to exhibit complex impoverishment, and therefore I limit my discussion to that language here.

As shown in (219), Ben Tey is SOV and verbs agree with their subjects for person and number via suffixes.

(219) *Ben Tey subject agreement*

a. bɔ̌:=nì yì-ỳ
father.1sg=acc see.pfv-1sg
'I saw my father.' (Heath 2013:141)

b. yǎm kù jíjɛ̀ gô-:w
woman DEF go.with go.out.IPFV-2PL
'You.PL will go out (of the village) with the woman.' (Heath 2013:265)

c. nǔ: nàwⁿâ: bǎ̀yⁿ kùwó-bɔ̀
people meat a.lot eat.meat.PFV-3PL
'The people ate a lot of meat.' (Heath 2013:11)

Subject focus induces anti-agreement. Focused subjects take a clitic *-m̀* and occur at the left edge of the clause. As shown in (220), focused 1st and 2nd person subjects occur with a 3rd person singular verb form, which is unmarked.

(220) *Anti-agreement with focused 1st and 2nd person subjects*

a. í=m̀ lò-Ø
1SG=FOC go.PFV-3SG
'It's I who went.' (Heath 2013:208)

b. î:=m̀ lò-rì-Ø
1PL=FOC go-PFV.NEG-3SG
'It was we who did not go.' (Heath 2013:209)

c. ú=m̀ ló-m̀-dó-Ø
2SG=FOC go-IPFV-NEG-3SG
'It's you.SG who will not go.' (Heath 2013:209)

d. û:=m̀ lò-Ø
2PL=FOC go.PFV-3SG
'It's you.PL who went.' (Heath 2013:209)

Focused 3rd person subjects behave differently. With a focused 3rd person singular subject, the verb form is the expected unmarked form, (221a). But with a focused 3rd person plural subject, the verb still bears 3rd person plural agreement, as shown in (221b).

(221) *Agreement with focused 3rd person subjects*

a. sěydù=m̀ lɔ̀-rì-Ø
Seydou=FOC go-PFV.NEG-3SG
'It was Seydou who did not go.' (Heath 2013:209)

b. bû:=m̀ ló-m̀-n-ɛ́
3PL=FOC go-IPFV-NEG-3PL
'It's they who will not go.' (Heath 2013:209)

This pattern of anti-agreement is summarized below. Table 3.20 gives the full φ-agreement paradigm and 3.21 gives the paradigm found with subject focus (compiled from Heath 2013, pp. 135–137).

	SG	PL
1	V-ỳ	V-:-ỳ
2	V-ẁ	V-:-ẁ
3	V-Ø	V-(y)ɛ̀

Table 3.20: Ben Tey φ-agreement

	SG	PL
1	V-Ø	V-Ø
2	V-Ø	V-Ø
3	V-Ø	V-(y)ɛ̀

Table 3.21: Ben Tey AA

The Ben Tey φ-agreement paradigm in table 3.20 can be derived with the following VIs.

(222) *Ben Tey φ-agreement VIs*

a. -ỳ ↔ [+AUTH, AGR]

b. -ẁ ↔ [+PART, AGR]

c. -: ↔ [+PL, AGR]

d. -(y)ɛ̀ ↔ [−PART, +PL, AGR]

I assume that 1st person is specified as [+PART(ICIPANT), +AUTH(OR)], while 2nd person is specified as [+PART, -AUTH]. Number marking is either expressed together with 3rd person, *-(y)ɛ̀*, or spelled out as vowel lengthening on the final vowel of the verb before the agreement suffix with 1st and 2nd persons.[20] When none of these VIs can be inserted, the verb remains unmarked. In the baseline paradigm, this occurs in 3rd person singular contexts.

The leveling of φ-contrasts in Ben Tey is not uniform across the agreement paradigm. Instead, it is contingent on whether the subject is 1st/2nd person or 3rd person. The feature that distinguishes these persons, and therefore that conditions impoverishment in this case, is [±PART]. When the subject is 1st or 2nd person, marked [+PART], all person and number distinctions are leveled. When the subject is 3rd person, marked [−PART], no impoverishment takes place, leaving number in place to be expressed.

I assume that the probe responsible for subject-verb agreement in Ben Tey resides on Asp, given that this is the major inflectional category in Ben Tey verbs (Heath 2013, Ch. 10). Furthermore, I assume that the focus clitic *=m̀* spells out the Ā-feature [FOC] on D. When Asp agrees with a focused subject, therefore, it ends up with both [FOC] and [φ]. I

20. 1PL and 2PL inflection is composed of the suffixes *-ỳ* or *-ẁ* accompanied by specific prosodic effects on the preceding syllable, which include lengthening of that syllable's vowel (and I therefore represent these prosodic effects with -:). By separating out the prosodic effects from the segmental marking, my analysis differs from Heath's (2013), who groups them together in a single morpheme.

argue that impoverishment is triggered in this configuration whenever the φ-features on Asp contain [+PART]. The rule is given in (223).

(223) *Ben Tey impoverishment*

$$\begin{bmatrix} \varphi_N & \\ | & \\ \varphi_P & \text{— +PART} \end{bmatrix} \rightarrow \varnothing \;/\; [\_\_, \text{FOC}, \text{Asp}]$$

The rule (223) deletes the entire φ-feature set when that φ-set includes [+PART], thereby removing all φ-features from Asp. This prevents the insertion of any overt agreement morphology, and the verb surfaces unmarked.[21] When the φ-features on Asp include [−PART], and there is no impoverishment, the verb will either surface in its 3rd person singular unmarked form or its 3rd person plural marked form.

3.5.2 Fiorentino: impoverishment conditioned by [−PARTICIPANT]

In chapter 2, I presented an analysis of anti-agreement in the northern Italian dialect Fiorentino.[22] Recall that Fiorentino has agreement on the verb and in the form of a preverbal subject clitic. As shown in (224), postverbal focused subjects, subject *wh*-questions, subject relative clauses, and topicalized subjects require default agreement (i.e., anti-agreement) on both clitic and verb.

(224) *Fiorentino anti-agreement*

a. *Focused postverbal subject*

glì/*le	ha/*hanno	telefonato	delle	ragazze
3SG.M/3PL.F	have.3SG/have.3PL	phone.PTCP	some	girls

'Some girls have telephoned.' (Brandi and Cordin 1989:122)

b. *Subject* wh-*question*

Quante	ragazze	gli/*le	ha/*hanno	parlato	con	te
how.many	girls	3SG.M/3PL.F	have.3SG/have.3PL	spoken	with	you

'How many girls have spoken to you?' (Brandi and Cordin 1989:124–125)

21. The impoverishment rule in (223) must delete both [NUMBER] and [PERSON]. This is because there are separate markers of person and number marking when the subject is [+PART]. While a rule that deletes only [PERSON] would account for the pattern of leveling in the singular, it would not account for the pattern of leveling in the plural.

22. In that discussion, I also showed that the facts in Fiorentino hold for Trentino, another northern Italian dialect. The facts in this section also hold for Trentino (Brandi and Cordin 1989; Suñer 1992).

c. *Subject relative clause*

Le	ragazze	che	gli/*le	ha/*hanno	parlato	con	te
the	girls	C	3SG.M/3PL	have.3SG	spoken	with	you

‘the girls who have spoken to you’ (Brandi and Cordin 1989:126)

d. *Subject topic*

La	Maria,	gli/l’	è	venuto/*venuta,	non	la	Carla
the	Maria	3SG.M/3SG.F	be.3SG	come.PTCP/come.PTCP.F	not	the	Carla

‘Maria has come, not Carla.’ (Brandi and Cordin 1989:139)

I offered a unified analysis of these four contexts in terms of the feature content of the subject DP. In subject *wh*-questions, subject relatives clauses, and subject topicalization, the subject bears an Ā-feature that drives movement to Spec-CP. I argued that postverbal focused subjects bear a feature [FOC]. The structure I assume for postverbal focused subjects is given in (225).[23]

(225) *Postverbal focused subject*

$[_{\text{CP}}$ C $[_{\text{AgrP}}$ Agr $[_{\text{TP}}$ V+T … [… $\text{DP}_{[\text{FOC}]}$ …]]]]

I argued that in all three contexts in (224), φ-probes on Agr and T find the subject DP and copy back both [φ] and [Ā] from it.

(226) *Fiorentino: impoverishment applies to Agr and T*

IMPOVERISHMENT

$[_{\text{AgrP}}$ $\text{Agr}_{[\text{u}\varphi]}$ $[_{\text{TP}}$ $\text{T}_{[\text{u}\varphi]}$ [… $\text{DP}_{[\varphi,\ \text{FOC}]}$ …]]]

AGREE FOR [φ, Ā]

In the morphology, the presence of an Ā-feature and φ-features on Agr and T trigger φ-impoverishment. In chapter 2, I assumed that the following total φ-impoverishment rule was active in the language.

(227) *Fiorentino φ-feature impoverishment (to be revised)*

[φ] → Ø / [__, Ā, Agr]

23. While I follow Belletti (2001) in the interpretation of such postverbal subjects, I diverge from her by not assuming a focus position below T. See section 2.4 for discussion.

As noted in chapter 2, however, this rule cannot account for the behavior of postverbal focused 1st and 2nd person subjects. With such subjects, there must be full agreement on the verb and there is a fully agreeing subject clitic. This is shown in (228).

(228) *Postverbal 1st and 2nd person subjects control full agreement*

a. e parl-o io
1SG speak.1SG 1SG
'I speak.' (Suñer 1992:652)

b. tu parl-i te
2SG speak.2SG 2SG
'You speak.' (Suñer 1992:652)

c. si parl-a noi
1PL speak.1PL 1PL
'we speak.' (Suñer 1992:652)

d. vu parl-i voi
2PL speak.2PL 2PL
'You speak.' (Suñer 1992:652)

The data in (228) are incompatible with the impoverishment rule in (227) as it stands. Specifically, the analysis predicts that postverbal focused subjects should trigger impoverishment regardless of their φ-features.

I suggest that the Fiorentino pattern is best understood as a case of complex impoverishment. Just as in the Ben Tey pattern discussed in the previous section, whether or not impoverishment takes is contingent on the φ-features of the subject. In Fiorentino, impoverishment takes place when the subject is 3rd person, and therefore the necessary condition on impoverishment is the presence of the feature [−PART]. More precisely, I propose the following complex impoverishment rule for Fiorentino.

(229) *Fiorentino complex impoverishment*

$$\begin{bmatrix} \varphi_{\text{N}} & \\ | & \\ \varphi_{\text{G}} & \\ | & \\ \varphi_{\text{P}} & \text{— −PART} \end{bmatrix} \rightarrow \emptyset \; / \; [\_\_, \bar{\text{A}}, \text{Agr}]$$

The rule in (229) deletes the entire φ-feature set from a head bearing an [Agr] feature (Agr or T in this case) and a [FOC] feature when those φ-features contain [−PART]. This immediately derives the fact that postverbal focused 1st and 2nd person subjects do not trigger impoverishment.

In both Ben Tey and Fiorentino there is a split between 1st and 2nd persons and 3rd person with regard to which type of subjects trigger φ-impoverishment. Importantly, however, the split goes in a different direction in each language. In Ben Tey, the conditioning feature is [+PART]—1st and 2nd person subjects trigger impoverishment, while 3rd person subjects do not. In Fiorentino, the opposite is true; the conditioning feature is [−PART]—3rd person subjects trigger impoverishment, while 1st and 2nd person subjects do not. I will return to this point below in section 3.6.

3.5.3 Kikuyu: impoverishment conditioned by [−PARTICIPANT]

While complex impoverishment in Fiorentino and Ben Tey is *total*, as noted at the beginning of this section, this does not necessarily have to be the case—complex impoverishment may also be *partial*. The Bantu language Kikuyu (ISO: `kik`, Kenya) exhibits partial complex impoverishment triggered by the feature [−PART]. Compare table 3.22, which shows Kikuyu subject agreement morphology in clauses without an Ā-subject, with table 3.23, which shows the pattern of agreement that occurs when the subject DP has Ā-features.

	SG	PL
1st	n-	tũ-
2st	ũ-	mũ-
3rd, CL1/2	a-	ma-

Table 3.22: Kikuyu agreement with non-Ā-subject (Michelle Yuan, p.c.):

	SG	PL
1st	n-	tũ-
2st	ũ-	mũ-
3rd, CL1/2	ũ-	ma-

Table 3.23: Kikuyu agreement with Ā-subject (Michelle Yuan, p.c.):

As in Lubukusu, there is a change in subject agreement morphology when the subject bears Ā-features. Specifically, instead of the expected *a-* prefix in table 3.22, 3SG/class 1 is marked by the prefix *ũ-*. As in Lubukusu, this prefix is homophonous with the 2nd person singular subject agreement prefix *ũ-* (as shown by the highlighting in the table).

The crucial difference between Lubukusu and Kikuyu, however, is that in Kikuyu, an alternative form of agreement appears *only* in the 3rd person singular (or class 1) cell of the paradigm. First person singular agreement is not leveled, and neither are any φ-contrasts in the plural half of the paradigm.

Such a pattern can be straightforwardly analyzed as an instance of complex impoverishment that only deletes a subset of the entire φ-set. I propose that the impoverishment rule in (230) is active in Kikuyu.

(230) *Kikuyu complex impoverishment*

$$\begin{bmatrix} \varphi_{\mathrm{N}} & \\ | & \\ \varphi_{\mathrm{G}} & \\ | & \\ \varphi_{\mathrm{P}} \text{ — } -\textsc{part} & \end{bmatrix} \rightarrow \begin{bmatrix} \varphi_{\mathrm{N}} \\ | \\ \varphi_{\mathrm{G}} \end{bmatrix} / [\_\_, \bar{\mathrm{A}}, \mathrm{Agr}]$$

The rule in (230) deletes the φ_{P}-node from the φ-feature set when that feature set occurs on a head with the [Agr] feature and [Ā], as long as that φ-set contains the feature [−part]. In other words, Ā-triggered φ-impoverishment only affects 3rd persons subjects—those that have [−part] in their feature set.

I extend the analysis of agreement VIs in Lubukusu to Kikuyu. Specifically, I propose the following VIs for the subject agreement prefixes in Kikuyu.[24]

(231) *Kikuyu subject agreement VIs (partial)*

a. n- ↔ [+part, +auth, A, -pl, Agr]
b. tũ- ↔ [+part, +auth, A, +pl, Agr]
c. mũ- ↔ [+part, -auth, A, +pl, Agr]
d. a- ↔ [-part, -auth, A, -pl, Agr]
e. ũ- ↔ [A, -pl, Agr]
f. ma- ↔ [A, -pl, Agr]

As in Lubukusu, the morpheme that generalizes in the Ā-context is the least specific in terms of the features it spells out. While *n-* and *a-* are marked as spelling out only one person (1st and 3rd, respectively), *ũ-* is underspecified with regards to [person] features; it is only specified as spelling out gender A and singular ([−pl]).

Given the VIs in (231), there is no need to limit the impoverishment rule in (230) to the singular. This is because the prefix *ma-* is already the most underspecified morpheme in the inventory of plural prefixes. Impoverishment will therefore not yield a change in which VI is inserted.

24. See table 3.14 for my analysis of Lubukusu subject agreement VIs.

In the absence of impoverishment, *ũ-* is inserted to realize agreement only for 2nd person singular subjects (just as in Lubukusu). When the subject bears Ā-features, on the other hand, impoverishment will render *a-* ineligible for insertion; the feature [−PART] will no longer be in the structure. Consequently, *ũ-* will generalize to the 3rd person singular cell of the paradigm. Because impoverishment only occurs for [−PART] feature bundles, no other leveling occurs elsewhere in the paradigm. For example, 1st person singular subjects retain the exponent *n-*, instead of leveling to *ũ-* as they do in Lubukusu.

The patterns of agreement in Lubukusu and Kikuyu may at first blush seem to be different phenomena. However, the postsyntactic account of anti-agreement as φ-impoverishment reveals the deep similarity between the two. In addition, the φ-impoverishment approach captures the difference between Lubukusu and Kikuyu *without* having to posit a different analysis of agreement VIs in the two languages. In fact, the morphological inventory of agreement morphemes of the two languages is identical; it is the *type of impoverishment rule* that varies between the two languages. That the pattern of complex impoverishment in Kikuyu is attested outside Bantu also supports the analysis of both patterns within Bantu as impoverishment.

Besides Kikuyu, I have found this pattern of partial complex impoverishment in the Bantu languages Abo (ISO: abb, Cameroon; Burns 2013) and Kinande (ISO: nnb, Democratic Republic of the Congo; Schneider-Zioga 2007 and Patricia Schneider-Zioga p.c.).

3.5.4 Lubukusu: impoverishment conditioned by [−PLURAL]

In section 3.4.3, I discussed the pattern of partial φ-impoverishment displayed by Lubukusu. Compare tables 3.24 and 3.25 (on the next page), repeated from tables 3.15 and 3.16 above.

	SG	PL
1st	n-	khu-
2nd	o-	mu-
3rd, CL1/2	a-	ba-

Table 3.24: Lubukusu agreement with in situ subject (Diercks 2010:141)

Following Diercks's (2010) analysis of the Lubukusu facts, I argued that pattern of syncretism in table 3.25 is derived by impoverishment of [PERSON] in the context of [Ā].

Diercks shows that there are actually two patterns of anti-agreement in Lubukusu. In the pattern above, [PERSON] is uniformly impoverished across the paradigm. This leads to syncretism in both the singular and the plural. In the second pattern, however, [PERSON]-impoverishment is not uniform. As shown in (232), 1st person plural and 2nd plural extracted subjects can alternatively control full agreement on both the verb and the C-prefix.

	SG	PL
1st	o-o-	ba-ba-
] 2nd	o-o-	ba-ba-
3rd, CL1/2	o-o-	ba-ba-

Table 3.25: Lubukusu agreement with extracted subject, pattern B (Diercks 2010:141)

(232) *Full agreement with extracted 1PL/2PL subject*

a. Nifwe **khu-khw**-onak-e kumulyango kuno
   1PL 1PL.C-1PL.SBJ-damage-PST CL3.door CL3.DEM
   'It is us who damaged the door' (Diercks 2010:133)

b. Ninywe **mu-mw**-onak-e kumulyango kuno
   2PL 2PL.C-2PL.SBJ-damage-PST CL3.door CL3.DEM
   'It is you(PL) who damaged the door' (Diercks 2010:133)

The full second anti-agreement pattern, which Diercks refers to as 'pattern A' is shown in table 3.26.[25]

	SG	PL
1st	o-o-	khu-khu-
2nd	o-o-	mu-mu-
3rd, CL1/2	o-o-	ba-ba-

Table 3.26: Lubukusu agreement with extracted subject, pattern A (Diercks 2010:141)

I suggest that this pattern is best understood as another example of complex impoverishment. In this pattern, φ_P-node deletion is conditioned by the feature [−PL]. Specifically, I propose that the second pattern is derived by the complex impoverishment rule in (233).

25. According to Diercks (p.c.), optionality between pattern A anti-agreement and pattern B anti-agreement in Lubukusu is allowed by individual speakers. That is, the same speaker may employ both pattern A and pattern B. This same optionality is apparently also present in Wanga, a Bantu language closely related to Lubukusu.

(233) *Lubukusu complex impoverishment*

$$\begin{bmatrix} \varphi_{\mathrm{N}} \text{ --- } -\textsc{pl} \\ | \\ \varphi_{\mathrm{G}} \\ | \\ \varphi_{\mathrm{P}} \end{bmatrix} \rightarrow \begin{bmatrix} \varphi_{\mathrm{N}} \text{ --- } -\textsc{pl} \\ | \\ \varphi_{\mathrm{G}} \end{bmatrix} / [\_, \bar{\mathrm{A}}, \mathrm{Agr}]$$

The rule in (233) deletes the φ_{P}-node from the φ-feature set when that feature set occurs on a head with the [Agr] feature and an Ā-feature, as long as that φ-set contains the feature [−PL]. In doing so, the rule captures the fact that in table 3.26, person distinctions are leveled in the singular but not in the plural. Thus, as in Kikuyu, we have a case of partial complex impoverishment. Not only is the deletion of φ-features in the context of Ā-features partial, but that deletion is contingent on the presence of a specific φ-feature.

The pattern of complex impoverishment exhibited by Lubukusu is also found in Zimbabwean Ndebele (ISO: `nde`; Asia Pietraszko, p.c.) and Zulu (ISO: `zul`, South Africa; Jochen Zeller, p.c.). These languages will be discussed in more detail in chapter 4.

3.5.5 Berber: conditional impoverishment of [GENDER]

We have already seen two patterns of anti-agreement in Berber languages, manifesting as different inflectional patterns on participles, the verb form found in Ā-subject contexts. In Tarifit, there is a single invariant participle, shown in (234). In Tashlhit, the participle varies for number, as shown in (235).[26]

(234) *Tarifit participle form*
i-V-*(n)*

(235) *Tashlhit participle forms*
a. *Singular*
i-V-*(n)*
b. *Plural*
V-(*nin*)

There are at least two other patterns of participle inflection in Berber, both involving the marking of gender. The first pattern is found in Ghadamès, a Berber language spoken in Libya. As shown in table 3.27, Ghadamès has three participle forms—masculine singular, feminine singular, and plural.

26. See section 2.3 for my analysis of Tarifit and 3.4.2 for my analysis of Tashlhit. The participle suffixes that are in parentheses in (234) and (235) surface only in certain aspectual forms.

	SG	PL
M	i-V-ăn	V-nin
F	t-V-ăt	V-nin

Table 3.27: Ghadamès participle forms (Kossmann 2013:95)

The use of these participle forms is given the context of relative clauses in (236).

(236) *Ghadamès participle in relative clauses*

a. *Masculine singular head relativized noun*
wəğğide **i**-măžžăr-**ăn** tamáda nnúk
man 3SG.M-cultivate-PTCP.SG.M garden of.1SG
'the man who will cultivate my garden' (Kossmann 2013:95)

b. *Masculine plural head relativized noun*
wəğğidăníd măžžăr-**nin** tamáda nnúk
men cultivate-PTCP.PL garden of.1SG
'the men who will cultivate my garden' (Kossmann 2013:95)

c. *Feminine singular head relativized noun*
taḷămte **t**-əfăl-**ăt**
camel 3SG.F-go-PTCP.SG.F
'the camel that went away' (Kossmann 2013:95)

d. *Feminine plural head relativized noun*
taltawéníd ḍărrăs-**nin** i taṣlet
women do.hair-PTCP.PL to bride
'the women that (always) do the hair of the bride' (Kossmann 2013:95)

I suggest that this pattern of participle inflection can be analyzed as another case of complex impoverishment of [GENDER], with the number feature of the subject conditioning whether that feature is lost. When the extracted subject is singular (with the feature [−PL]), gender features are not deleted and they surface on the participle, as in (236a)/(236c). When the subject is plural (with the feature [+PL]), gender features are impoverished, and the participle is only inflected for number, as in (236b)/(236d).

In both situations, however, [PERSON] features are always impoverished. To account for this pattern, I propose that there are two impoverishment rules that apply to Asp in Ghadamès, shown in (237).

(237) *Ghadamès impoverishment rules*

a. *Plural subject* ⟶ *[GENDER, PERSON]-impoverishment*

$$\begin{bmatrix} \varphi_{\mathrm{N}} \text{ --- } +\textsc{pl} \\ | \\ \varphi_{\mathrm{G}} \\ | \\ \varphi_{\mathrm{P}} \end{bmatrix} \longrightarrow \left[\ \varphi_{\mathrm{N}} \text{ --- } +\textsc{pl}\ \right] / \left[\_,\ \bar{\mathrm{A}},\ \mathrm{Asp}\right]$$

b. *Singular subject* ⟶ *[PERSON]-impoverishment*

$$\begin{bmatrix} \varphi_{\mathrm{N}} \text{ --- } -\textsc{pl} \\ | \\ \varphi_{\mathrm{G}} \\ | \\ \varphi_{\mathrm{P}} \end{bmatrix} \longrightarrow \begin{bmatrix} \varphi_{\mathrm{N}} \text{ --- } -\textsc{pl} \\ | \\ \varphi_{\mathrm{G}} \end{bmatrix} / \left[\_,\ \bar{\mathrm{A}},\ \mathrm{Asp}\right]$$

Both rules apply to Asp heads which bear both φ- and Ā-features. The first rule, in (237a), deletes the φ_{G}- and φ_{P}-nodes from the φ-feature set when that feature set contains [+PL]. The second rule, (237b) deletes only the φ_{P}-node, leaving gender features in place to be spelled out.

Like in the other Berber languages that I have discussed, participles in Ghadamès are formed with a special suffix. Unlike the other languages we have seen, this suffix is itself inflected for [GENDER] in the singular: *-ăn* for masculine subjects, *-ăt* for feminine subjects. In the plural, the participle suffix has the same form as in the Tashlhit plural participle, *-nin*. I propose the vocabulary items in (238) and (239) to account for this morphological pattern.

(238) *Ghadamès gender prefixes*

a. i- ↔ [AGR]

b. t- ↔ [+FEM, AGR]

(239) *Ghadamès participle suffixes*

a. -ăn ↔ [Ā] / __ [ASP]

b. -ăt ↔ [+FEM, Ā] / __ [ASP]

c. -nin ↔ [+PL, Agr, Ā] / __ [ASP]

The vocabulary items in (239) follows the core intuition of the analysis of the Berber participle developed in earlier sections. Namely, the participle suffix realizes the Ā-feature that is present on Asp in subject extraction contexts. In Ghadamès, the participle suffixes also spell out φ-features which remain on Asp after impoverishment takes place.

A second pattern of participle inflection involving gender is found in Ouargli (ISO: oua, Algeria). As seen in table 3.28, the Ouargli participle distinguishes gender in the plural, but not in the singular.

	SG	PL
M	V-en	V-en
F	V-en	V-en-t

Table 3.28: Ouargli participle forms (Kossmann 2003:28)

I argue that the Ouargli pattern arises because of complex impoverishment of [GENDER], just as the Ghadamès pattern does. In Ouargli, however, [GENDER] is deleted in the singular, but it is retained in the plural. Like all Berber languages we have seen, [PERSON] features are deleted in both contexts. I propose that the impoverishment rules in (240) apply to Asp in Ouargli when that head has both [φ] and [Ā].

(240) *Ouargli impoverishment rules*

a. *Singular subject → [GENDER, PERSON]-impoverishment*

$$\begin{bmatrix} \varphi_{\text{N}} - \text{–PL} \\ | \\ \varphi_{\text{G}} \\ | \\ \varphi_{\text{P}} \end{bmatrix} \rightarrow [\ \varphi_{\text{N}} - \text{–PL}\ ]\ /\ [\_\_,\ \bar{\text{A}},\ \text{Asp}]$$

b. *Plural subject → [PERSON]-impoverishment*

$$\begin{bmatrix} \varphi_{\text{N}} - \text{+PL} \\ | \\ \varphi_{\text{G}} \\ | \\ \varphi_{\text{P}} \end{bmatrix} \rightarrow \begin{bmatrix} \varphi_{\text{N}} - \text{+PL} \\ | \\ \varphi_{\text{G}} \end{bmatrix}\ /\ [\_\_,\ \bar{\text{A}},\ \text{Asp}]$$

The first rule, in (240a), deletes the φ_{G}- and φ_{P}-nodes from the φ-feature set when that feature set contains [−PL]. The second rule, (240b) deletes only the φ_{P}-node, leaving number and gender features in place to be spelled out. This occurs when the φ-bundle contains [+PL].

Like in other Berber languages, the participle in Ouargli is formed with a suffix, in this case *-en* across the paradigm. In the feminine plural, the suffix takes an additional suffix *-t*. As can be seen from table 3.29, this morpheme is found in all feminine plural forms in the full subject agreement paradigm.

	SG	PL
1M	V-a	n-V-et
1F	V-a	n-V-em-t
2M	t-V-ed	t-V-em
2F	t-V-ed	t-V-em-t
3M	i-V	V-en
3F	t-V	V-en-t

Table 3.29: Ouargli φ-agreement (Biarnay 1908:60)

I argue that the Ouargli participle can be analyzed with two vocabulary items, given in (241) and (242).

(241) *Ouargli feminine plural agreement*
-t ↔ [+FEM, +PL, Agr]

(242) *Ouargli participle suffix*
-en ↔ [Ā] / __ [ASP]

Like the participle suffix in other Berber languages, the Ouargli participle suffix *-en* spells out the feature [Ā] that remains on Asp after φ-impoverishment. Unlike the other Berber languages we have seen, however, the Ouargli singular participle does not take any prefix.

This fact presents us with a puzzle. I have suggested above that the prefix *i-* found in 3rd person masculine singular forms across the Berber family is a morphological default, spelling out just [Agr]. But if this is the case, we expect it to surface in the participle as well—I have relied on the idea that anti-agreement is a retreat to an underspecified form. For one cell of the participle paradigm, this is unproblematic. The feature specification of the feminine plural suffix in (241), above, blocks the insertion of *i-* because the suffix *-t* is more highly specified. However, the other three cells of the paradigm remain unexplained. In those cases, there is no other affix that is not more highly specified than *i-*. Note that we cannot escape this puzzle by positing that *i-* actually spells out the feature [−FEM] (that is, masculine gender) in Ouargli because that feature is not deleted in all contexts. While gender features are deleted in the singular by the rule in (240a), those features are not deleted in the plural. Thus, [−FEM] should be present to spell out the prefix *i-* with masculine plural subjects. But this is not the case, as we see in table 3.28—there is no *i-* present in that cell of the paradigm.[27]

27. Furthermore, we cannot analyze the Ouargli pattern of [−FEM] impoverishment. This is because of the φ-DELETION CONSTRAINT (see example 185, above), which disallows the deletion of non-φ-nodes.

While I will leave this puzzle to further research, I tentatively suggest that the distribution of *i-* in Ouargli can be explained by appealing to different morphological well-formedness conditions for participles in Berber. In languages like Tarifit, Tashlhit, and Ghadamès, participles must contain an agreement affix in addition to the participle suffix, even if that agreement affix is the default *i-*. In Ouargli, however, this is not the case, and the participle suffix must occur on its own, or with the feminine plural suffix *-t*.

The four patterns of Berber participle inflection I have discussed over the course of this dissertation are summarized in table 3.30.

		Singular		Plural	
		Masc	Fem	Masc	Fem
Pattern 1	Tarifit	i-V-n	i-V-n	i-V-n	i-V-n
Pattern 2	Tashlhit	i-V-n	i-V-n	V-nin	V-nin
Pattern 3	Ghadamès	i-V-ăn	t-V-ăt	V-nin	V-nin
Pattern 4	Ouargli	V-en	V-en	V-en	V-en-t

Table 3.30: Summary of Berber participle forms

All Berber participles lack [PERSON] agreement, while varying on the other features that are expressed. Drouin (1996) and Kossmann (2003) explore where these patterns are found across the family. Pattern 1, where there is a single invariant participle is found in at least Tarifit, Kabyle and Shawiya. Pattern 2, where there is a number distinction but no gender distinction, is found in some dialects of Tamazight as well as Tashlhit. Pattern 3, where the participle shows a gender distinction in the singular but not in the plural, is found at least in Touareg languages (such as Tamashek) and Zenaga. Pattern 4, with a gender distinction in the plural but not in the singular, is found in Iche (one of the Zenati languages, Kossmann 2013) and at least one dialect of Tashlhit.

These patterns are accounted for by variation in the type of impoverishment rules that are active in each language. Pattern 1 is derived via a total impoverishment rule, while the other patterns are derived by some form of partial impoverishment. Pattern 2 impoverishment deletes [PERSON] and [GENDER], leaving number. Patterns 3 and 4 are instances of partial complex impoverishment. In pattern 3, [PERSON] is deleted in the presence of the feature [−PLURAL], while [PERSON] and [GENDER] are deleted in the presence of [+PLURAL]. In pattern 4, [PERSON] and [GENDER] are deleted in the presence of the feature [−PLURAL], while just [PERSON] is deleted in the presence of [+PLURAL].

The existence of multiple distinct patterns of impoverishment rules in a single language rules out a possible alternative account of variation across Berber. Specifically, it could be the case that all Berber languages share a single impoverishment rule, one that deletes only [PERSON], while leaving both [GENDER] and [NUMBER] untouched. Variation in this context would come down to the VIs that a given Berber variety has at its disposal in Ā-contexts. However, such an analysis would not be sufficient for languages like Ghadamès and Ouargli with multiple distinct impoverishment rules. This is because we would expect the features realized in one number in these languages to be exponed across the board. More specifically, if Ghadamès had an impoverishment rule that deleted [PERSON] without deleting [GENDER] in either plural or singular, we would expect the prefixal exponents of masculine (*i-*) and feminine (*t-*) to surface in the plural as well. But this is not the case. The impoverishment analysis captures the lack of gender distinction in the plural in the Ā-context.

3.6 Partial anti-agreement is not partial syntactic agreement

The existence of partial anti-agreement is significant because it shows that at least some of the φ-features of an Ā-marked DP must be available to φ-probes in the syntax. That is, in languages with partial anti-agreement, a DP with Ā-features must still be able to serve as a goal for Agree. Otherwise, the subset of φ-features that are still realized in the Ā-context not be available to be realized in the morphology. Whatever theory one appeals to derive the appearance of reduced/special agreement morphology in the context of Ā-features, partial anti-agreement is an important explanandum.

The current theory explains partial anti-agreement in a straightforward manner—it results from partial φ-impoverishment. Only a subset of the φ-feature set on a given probe is targeted for deletion, and therefore some φ-features remain to be realized morphologically. Regularities in the contrasts that can be neutralized emerge from the nature of the internal geometric structure of the φ-feature set. Crucially, in the impoverishment based approach, the result of Agree in the non-Ā-context and the result of Agree in the Ā-context are *identical.* The same φ-features are copied to the φ-probe, whether or not the goal has an Ā-feature.

This is not the case in syntactic theories of anti-agreement. As discussed in chapter 1, those theories hold that constraints on Ā-movement of a DP disrupt φ-agreement with that DP. The result of Agree in the Ā-context is *different* than the result of Agree in the non-Ā-context. Therefore, to explain instances of partial anti-agreement, syntactic accounts must posit some difference in the calculus of syntactic agreement in the Ā-context such that Agree for only a subset of φ-features is disrupted by constraints on Ā-movement. Partial anti-agreement must reduce to partial syntactic agreement in Ā-movement contexts.

There are two broad classes of analysis that are available to syntactic theories to explain partial anti-agreement. First, the φ-probe affected by anti-agreement in the Ā-context could simply be different than the φ-probe on the same head in the non-Ā-context. I will refer to this as the *different probe* approach. Second, the φ-probe in the two contexts could be identical but articulated in such a way that a subset of agreement features successfully agree in the Ā-context, but others cannot successfully agree. I will refer to this as the *articulated probe* approach.

The different probe approach to partial anti-agreement is pursued by Diercks (2010) and Henderson (2013) in their work on anti-agreement in Bantu. Recall that in Bantu languages like Lubukusu, subject extraction suppresses [PERSON] agreement, but agreement for [GENDER] and [NUMBER] remain. Though their accounts differ in the details, both authors argue that in subject extraction contexts, the subject agrees with a φ-probe that is only specified for [NUMBER] and [GENDER].[28] A representation of these two different probes is given in (243), where [uπ] represents a probe that searches for [PERSON]; [uγ] represents a probe that searches for [GENDER]; and [u#] represents a probe that searches for [NUMBER].

(243) *Different probe approach to Lubukusu*

a. *Non-Ā-contexts*
$\begin{bmatrix} \text{u}\pi \\ \text{u}\gamma \\ \text{u\#} \end{bmatrix}$

b. *Ā-contexts*
$\begin{bmatrix} \text{u}\gamma \\ \text{u\#} \end{bmatrix}$

While this approach is able to capture the difference between the agreement patterns in subject extraction contexts found in Lubukusu and other Bantu languages, it cannot be extended to a general theory of partial anti-agreement. The crucial problem is that there is nothing in this account that is able to restrict probes in the Ā-context to agreeing for a subset of the features agreed for in the non-Ā-context. That is, the different probes approach is unable to derive the Upper Bound of Agreement generalization, repeated here in (244).

(244) *Upper Bound of Agreement generalization*

The features expressed by an instance of agreement X when X is controlled by a nominal with an Ā-feature is always a subset of the features expressed by X when X is controlled by a nominal without an Ā-feature.

There is no language where φ-agreement becomes *richer* in contrasts when in the Ā-context. That is, there is no language that agrees with subjects for person and number in the non-Ā-context, while agreeing with subjects for person, number, and gender in the

28. See section 1.3.2.3 for an overview of Diercks's approach and section 1.3.2.2 for an overview of Henderson's.

Ā-context. Such a language could be described in the different probes account with the probes in (245).

(245) *Unattested hypothetical language*

a. *Non-Ā-contexts*
$$\begin{bmatrix} \text{u}\pi \\ \text{u\#} \end{bmatrix}$$

b. *Ā-contexts*
$$\begin{bmatrix} \text{u}\pi \\ \text{u}\gamma \\ \text{u\#} \end{bmatrix}$$

The different probe account of partial anti-agreement therefore requires a stipulation to capture this important generalization about the morphological outcome of Ā-sensitive φ-agreement. On other hand, this generalization falls out naturally of an impoverishment approach to anti-agreement. The upper bound of φ-feature contrasts expressed in the non-Ā-context is the upper bound of φ-feature contrasts expressed in the Ā-context because the same φ-features are agreed for in both cases.

In the different probe approach employed by Henderson and Diercks, agreement is successful in both the non-Ā-context and the Ā-context, but the features that are copied back to the probe differ in the two scenarios. In the Ā-context, the probe is only capable of agreeing for gender and number, while in the non-Ā-context it can also agree for person. The articulated probe approach to partial anti-agreement differs in a crucial way. Namely, such an approach holds that the probe or probes responsible for φ-agreement in the non-Ā-context and the Ā-context are identical, but the outcome of Agree in the syntax is different between the two.

Specifically, the articulated probe approach relies on the idea that different classes of φ-features do not behave as a single unit in the syntax and can therefore probe independently of one another.[29] Given this, partial agreement obtains when only a subset of these independent probes successfully copy back features from their potential goals.

Accounts differ on the details of how articulated probes should be represented in the syntax, but focusing on one such approach to partial agreement should be instructive as to how an articulated probe approach to partial anti-agreement could work. Preminger (2011) adopts a view in which the probe that searches for [PERSON] and the probe that searches for [NUMBER] are located in different syntactic positions. Let us label as π the head that bears the [PERSON]-probe, and as # the head that bears the [NUMBER]-probe. With this in place, cyclicity will determine which probe initiates its search for features first; whichever head, π or #, is merged first will probe immediately, and consequently π and # will probe in separate derivational steps, as shown in (246).

29. Examples of such approaches include Anagnostopoulou (2003); Béjar (2003); Preminger (2011, 2014); Shlonsky (1989); Sigurðsson and Holmberg (2008), among others.

(246) *Person/number on different heads → sequential probing*

a. *Step 1: π merged, probes*

$[_{\pi\text{P}}\ \pi\ [\ \ldots\ \text{DP}_{[\varphi]}\ \ldots\ ]]$

b. *Step 2: # merged, probes*

$[_{\#\text{P}}\ \#\ [_{\pi\text{P}}\ \pi\ [\ \ldots\ \text{DP}_{[\varphi]}\ \ldots\ ]]]$

Preminger argues that this configuration can capture an asymmetry between person and number in long distance agreement contexts. Namely, while both person and number agreement are found in long distance agreement contexts, agreement for person is more likely to be suppressed in these contexts than number agreement. Preminger suggests that there is an implicational relationship between the fallibility of person and number agreement, shown in (247).[30]

(247) *Relationship between person and number agreement at a distance*

If number agreement between α and β has been disrupted, person agreement between α and β is disrupted, as well.
(Preminger 2011:922)

Preminger assumes that partial number agreement means that # has successfully agreed in (246b), but that π has not. This is shown in (248).

(248) *Agreement for number but not person → π fails, # succeeds*

a. *Step 1: π merged, probes and fails*

$[_{\pi\text{P}}\ \pi\ [\ \ldots\ \text{DP}_{[\varphi]}\ \ldots\ ]]$

✗

30. The implicational relationship in (247) cannot be absolute—there are clearly instances of long distance person agreement without number agreement. One such instance is Nez Perce complementizer agreement (Deal 2015). As shown in (i) where agreement with a 1st person plural argument results in marking of 1st person without marking of plural.

(i) *Nez Perce C-agreement with 1st person plural*

$\boxed{\text{ke-}\mathbf{x}}$	kaa	*pro*$^{i}_{\text{SBJ}}$	hi-nees-cewcew-t´ee'nix	$\boxed{pro^{k}_{\text{OBJ}}}$
C-1	then	3pl	3SUBJ-O.PL-telephone-TAM	1pl

'when they call us' (Deal 2015:12)

In (i) the complementizer *ke* has agreed with the null *pro* object, which is 1st person plural. However, the complementizer only marks the fact that the object is 1st person with the suffix *-x*.

b. *Step 2: # merged, probes*

[$_{\#\mathrm{P}}$ # [$_{\pi\mathrm{P}}$ π [… DP$_{[\varphi]}$ …]]]

✓

There are two crucial assumptions made to derive the asymmetry between person and number that Preminger observes. First, π must always merge, and therefore probe, before #. Second, the first round of probing by π must be able to change the accessibility of the goal DP to #.

Preminger (2011) discusses two scenarios in which DP is inaccessible and how probing by π would change accessibility. The first is defective intervention—a defective intervener comes between π and DP. Thus, probing by π fails to access DP. However, by π agreeing with the intervener, it is rendered invisible to future probing and # may agree with DP. In Béjar and Rezac's (2003) account of the Person Case Constraint, the intervener is rendered invisible via clitic doubling. This is shown in (249).

(249) *Clitic doubling renders intervener invisible* (adapted from Preminger 2011:924)

[$_{\#\mathrm{P}}$ # [$_{\pi\mathrm{P}}$ Cl$_i$-π [… <intervener$_i$> DP$_{[\varphi]}$ …]]]

✗

✓

The second scenario is one in which a phase boundary intervenes between the goal DP and π. In this scenario, π encounters the phase boundary, agrees with it, and renders it invisible (as argued to be possible by Rackowski and Richards 2005, van Urk and Richards 2015). This is shown in (250).

(250) *Agree renders phase invisible* (adapted from Preminger 2011:924)

[$_{\#\mathrm{P}}$ # [$_{\pi\mathrm{P}}$ π [$_{\mathrm{PHASE}}$ … DP$_{[\varphi]}$ …]]]

✗

✓

To extend Preminger's account to partial anti-agreement, we could say that a DP with Ā-features is inaccessible, as are the DPs in (249) and (250), but that probing by π renders such a DP accessible to probing by #, as shown in (251).[31]

31. In order to derive the difference between languages that exhibit anti-agreement and those that do not exhibit anti-agreement, the accessibility of DPs based on Ā-features would need to vary crosslinguistically.

(251) *Probing by π renders DP with [Ā] accessible to #*

$$[_{\#P}\ \#\ [_{\pi P}\ \pi\ [\ \ldots\ \mathrm{DP}_{[\varphi,\,\bar{A}]}\ \cdots\ ]]]$$

✗

✓

The result of (251) would be successful agreement for [NUMBER], but not for [PERSON] in the Ā-context.

In the account just sketched, probing by π and # proceeds normally in (251). The difference between agreement in the Ā-context and the non-Ā-context comes down to a property of the goal, namely, whether or not it is accessible to each of the probes. In the non-Ā-context, it is accessible to both probes, whereas in the non-Ā-context it is only accessible to # after π has attempted to agree with it.

The crucial problem for the articulated probe account of partial anti-agreement comes from patterns of complex impoverishment. Recall that these are patterns where the features that are expressed by agreement are determined not only by whether the probe has copied back an Ā-feature or not, but also whether the probe includes a specific φ-feature. To show how such patterns are problematic for an articulated probe account, I will focus on the pattern of partial complex impoverishment observed in Lubukusu. Recall that in the Lubukusu pattern, singular Ā-subjects control gender and number agreement, while plural Ā-subjects control person, gender, and number agreement. Above, I analyzed this as an impoverishment rule that deletes [PERSON] features in the context of [−PL], shown in (252).

(252) *Lubukusu complex impoverishment*

$$\begin{bmatrix} \varphi_{\mathrm{N}} & \text{—} & -\textsc{pl} \\ | & & \\ \varphi_{\mathrm{G}} & & \\ | & & \\ \varphi_{\mathrm{P}} & & \end{bmatrix} \rightarrow \begin{bmatrix} \varphi_{\mathrm{N}} & \text{—} & -\textsc{pl} \\ | & & \\ \varphi_{\mathrm{G}} & & \end{bmatrix} /\ [\_\_,\ \bar{\mathrm{A}},\ \mathrm{Agr}]$$

The rule in (252) captures that there are fewer φ-contrasts when the subject is singular.

Consider how a Preminger-style articulated probe model would derive this pattern. In the syntactic account, the crucial observation would be that there are *more* agreement contrasts when the subject is plural than when the subject is singular. The only way to capture this would be to say that probing by π succeeds when the subject is plural (that is, [+PL]), but fails when the subject is singular (that is, [−PL]). In either case, π 'unlocks' the Ā-marked DP for further probing, and number and gender agreement are possible. This is shown in (253), where γ represents a head hosting a probe that searches for [GENDER] features located between the person and number probes.

(253) *Partial complex impoverishment in Lubukusu*

a. *Subject [−PL] → π fails*

$[_{\#P}\ \#\ [_{\gamma P}\ \gamma\ [_{\pi P}\ \pi\ [\ \ldots\ \mathrm{DP}_{[\boldsymbol{\varphi}\textbf{:-PL}, \bar{\mathrm{A}}]}\ \cdots\ ]]]$

$\boxed{✗}$

✓

✓

b. *Subject [+PL] → π succeeds*

$[_{\#P}\ \#\ [_{\gamma P}\ \gamma\ [_{\pi P}\ \pi\ [\ \ldots\ \mathrm{DP}_{[\boldsymbol{\varphi}\textbf{:+PL}, \bar{\mathrm{A}}]}\ \cdots\ ]]]$

$\boxed{✓}$

✓

✓

In this derivation of partial complex anti-agreement, the value of [±PL] feature determines whether probing by π is successful. But this is counterintuitive if π is a *person* probe. If π is a probe that searches for [PERSON] independently of [NUMBER] and [GENDER], why should the type of number feature that a goal bears have any effect on its behavior?

Furthermore, recall that Lubukusu has an additional pattern of partial anti-agreement, one in which [PERSON] is leveled regardless of the number of the subject. In the impoverishment approach to anti-agreement, this can be seen as a simple consequence of applying one rule or another; nothing is different about the syntax. On the other hand, in the many probes approach, there would have to be fundamentally different syntactic heads involved in the two patterns.

This same type of problem occurs for a language like Ghadamès, where person and gender agreement are neutralized in the plural, but only person agreement is neutralized the singular. Such a pattern would force an analysis like the one shown in (254).

(254) *Partial complex impoverishment in Ghadamès*

a. *Subject [−PL] → π fails, γ succeeds*

$[_{\#P}\ \#\ [_{\gamma P}\ \gamma\ [_{\pi P}\ \pi\ [\ \ldots\ \mathrm{DP}_{[\boldsymbol{\varphi}\textbf{:-PL}, \bar{\mathrm{A}}]}\ \cdots\ ]]]$

$\boxed{✗}$

$\boxed{✓}$

✓

b. *Subject [+PL] → π and γ fail*

$[_{\#P}\ \#\ [_{\gamma P}\ \gamma\ [_{\pi P}\ \pi\ [\ \ldots\ \mathrm{DP}_{[\boldsymbol{\varphi}\textbf{:+PL}, \bar{\mathrm{A}}]}\ \cdots\ ]]]$

$\boxed{✗}$

$\boxed{✗}$

✓

While the behavior of [PERSON] agreement is uniform in Ghadamès, [GENDER] agreement depends on the value of [±PL] on the goal. This is because π is the first probe to initiate search, and therefore the Ā-marked DP will inaccessible. However, it is again unclear why the number of the goal should have any effect on the behavior of a probe that searches only for [GENDER]. Furthermore, the effect of the [±PL] on the behavior of probing by γ in Ghadamès is the *opposite* of what we observe in Lubukusu for the behavior of π. In Lubukusu, π successfully agrees when the subject is [+PL], but in Ghadamès, γ successfully agrees when the subject is [−PL].

The problem posed by the variable effect of [±PL] on probes in Lubukusu and Ghadamès is made more acute when one considers the behavior of number features in other agreement phenomena, specifically omnivorous agreement. Omnivorous agreement is a phenomenon whereby a given agreement marker indexes the presence of a particular feature on the subject *or* the object (or both; Nevins 2011). It has been shown that while omnivorous *plural* agreement is attested, omnivorous *singular* agreement is not attested. That is, there are languages in which an agreement marker tracks the presence of [+PL] on the subject or object, but there are no languages in which such a marker tracks the presence of [−PL]. This has been taken to show that singular nominals are not valid targets for Agree (Preminger 2014, 2017b). That is, the feature [−PL] is *syntactically active* in the same way that the feature [+PL] is.[32]

If this is truly the case, then the presence of [−PL] on a goal should not be able to have any effect whatsoever on a probe in the syntax, and the Ghadamès pattern would need to be derived in some other way. Thus, the Ghadamès pattern stands as a strong argument for the morphological theory of anti-agreement—we have seen independent evidence for the need for both [−PL] and [+PL] in the morphological component, and thus, the ability of [−PL] to condition φ-contrast neutralization supports the locating of that effect in the morphology.

Altogether, then, different potential syntactic approaches to partial anti-agreement fall short. They require complications and stipulations that the morphological, impoverishment centered account of partial anti-agreement does not face. Therefore, I conclude that the existence of partial anti-agreement, and in particular of partial complex anti-agreement, is a strong argument in favor of a morphological account of the phenomenon.

32. Preminger (2017b) takes this as an argument for privative number features in the narrow syntax—plural is [PL], while singular lacks a feature. We have seen, however, that there is good evidence for the activity of both [−PL] and [+PL] in the morphological component. Thus, there is a mismatch in the behavior of number features in the syntax and the morphology. I leave the proper resolution of this mismatch to further work.

3.7 The independence of φ-impoverishment and Ā-exponence

In the theory of anti-/*wh*-agreement pursued in this dissertation, the phenomenon is the result of a φ-probe agreeing with a goal that bears both an Ā-feature and φ-features. In the languages we have seen, this combination of features triggers impoverishment in the morphology, deleting all the φ-features on the probe. The output of impoverishment is a reduced set of features that is then realized as underspecified agreement morphology.

In this system, the operation that reduces the number of φ-feature contrasts in Ā-contexts, impoverishment, is formally distinct from the operation that actually matches the resulting feature set with morphological exponents, Vocabulary Insertion. The difference between what has been deemed '*wh*-agreement' (that is, appearance of a dedicated morpheme specific to Ā-context) and what has been deemed 'anti-agreement' (that is, appearance of a default agreement form in the Ā-context) comes down to the agreement vocabulary items a given language has available. If there is a morpheme that spells out an Ā-feature, that exponent will be inserted. If there is no morpheme specified to spell out [Ā], a default (or partial) agreement form will be realized, or in some languages, no agreement morpheme will surface at all.

In this section, I examine a clear prediction of this theory—whether or not a language exhibits φ-impoverishment in the context of an Ā-feature should be completely independent of whether or not that language exhibits Ā-exponence (that is, whether or not that language has agreement morphemes realizing [Ā]). I show that this prediction is borne out. Namely, there is at least one language, Kobiana, that does not have φ-impoverishment in the context of Ā-features but which *does* exhibit Ā-exponence in its φ-agreement paradigm. This finding supports the intuition behind my account, namely, that Ā-sensitive agreement is a manifestation of a φ-probe agreeing with an XP bearing both [φ] and [Ā].

We have already seen throughout chapter 2 and chapter 3 that the whether a language has total or partial φ-impoverishment is independent of whether or not that language exhibits Ā-exponence. Both Abaza and Tarifit have morphemes that realize this Ā-feature, (255), while Fiorentino does not, (256). All three languages, however, exhibit total φ-impoverishment.

(255) *Abaza and Tarifit → total impoverishment, Ā-feature realized*

a. *Abaza*

a-fač^{j}əʕ^{w}	a-finǰ^{j}an	a-pnə	dəzda	y-na-**z**-ax^{w}
DEF-sugar	DEF-cup	3SG.INAN-at	who	3SG.INAN-PFV-ERG.WH-take

'Who took the sugar out of the cup?' (O'Herin 2002:252)

b. *Tarifit*

man tamghart$_i$	ay	**y-zri-n**	—$_i$	Mohand
which woman	C	3SG.M-see-PTCP		Mohand

Intended: 'Which woman saw Mohand?' (Ouhalla 1993:479)

(256) *Fiorentino → total impoverishment, Ā-feature not realized*

Quante	ragazze	**gli**	**ha**	parlato	con	te
how.many	girls	3SG	have.3SG	spoken	with	you

'How many girls (it) has spoken to you?' (Brandi and Cordin 1989:124)

With regards to the coexistence of partial φ-impoverishment and Ā-exponence, the Berber language Tashlhit displays partial impoverishment and a morpheme expressing the Ā-feature left over after such impoverishment has taken place, as shown in (257). In Lubukusu, on the other hand, we have partial impoverishment but no overt realization of the Ā-feature that is responsible for triggering the impoverishment rule, (258).

(257) *Tashlhit → partial impoverishment, Ā-feature realized*

irgazen	lli	kerz-**nin**	igran
men	C$_{\text{REL}}$	plow-PTCP.PL	fields

'the men who have worked the fields' (Aspinon 1953:166)

(258) *Lubukusu → partial impoverishment, Ā-feature not realized*

Wh-*question with class 1 subject*

naanu	o-**w**-a-tim-a
CL1.who	CL1.C-CL1.AA-PST-run-FV

'Who ran?' (Wasike 2006:236)

It is also clearly the case that some languages do not have an active φ-impoverishment rule in the context of Ā-features. An example of one such language is Mexican Spanish, where full subject-verb φ-agreement is present on the verb in the relative clause part of a subject cleft.

(259) *Mexican Spanish subject cleft → full φ-agreement, no Ā-exponence*[33]

Soy	yo	que	estoy	aquí
be.1SG	1SG	C	be.1SG	here

'It's me who is here.'

33. Judgement from Jorge Beltrán Luna (p.c.).

Within the current theory, I assume that agreement on the verb *estoy* in (259) is derived via agreement between a φ-probe and the DP that moves to Spec-CP. This DP will have both φ-features and an Ā-feature that drives Ā-movement, and thus the φ-probe will copy back both those features. The conclusion must therefore be that there is no φ-impoverishment in this context in Mexican Spanish, because the verb *estoy* exhibits full φ-agreement with the clefted subject.[34]

The languages just mentioned fit into the two by three typology in table 3.31, below.

		φ-impoverishment		
		TOTAL	PARTIAL	NONE
Ā-exponence	YES	Abaza	Tashlhit	??
	NO	Fiorentino	Lubukusu	Spanish

Table 3.31: Typology of Ā-exponence and impoverishment (to be revised)

A natural question to ask when looking at this table is whether there are languages that can fill in the shaded cell in the upper right hand corner. Such a language would exhibit Ā-exponence while lacking φ-impoverishment in the context of Ā-features. It is a clear prediction of the morphological account of anti-agreement that such a language should exist. This is because the theory of Ā-sensitive φ-agreement simply holds that φ-probes *copy back* the Ā-features of the goal, as shown in (260).

(260) *Ā-sensitive φ-agreement*

$[\ \ldots\ \mathrm{H}_{[\mathrm{u}\varphi]}\ \ldots\ \mathrm{DP}_{[\varphi,\ \bar{\mathrm{A}}]}\ \ldots\ ]$

φ+Ā

The theory does not require that these Ā-features trigger φ-impoverishment. Thus, if they do not, the entire φ-feature set of the DP in (260) *and* the Ā-features of that DP should be available for spell out.

Such a language does indeed exist, namely the Atlantic language Kobiana (ISO: `kcj`, Guinea-Bissau). Verbs in Kobiana agree with their subjects for person and number through a set of subject agreement prefixes. Subject focus triggers a second set of subject agreement prefixes on the verb.

34. This conclusion holds regardless of whether one thinks that the clefted subject pronoun *yo* moves to Spec-CP itself or if (259) is mediated by null operator movement. In the former case, the moved DP will naturally bear the φ-features of *yo*. In the former case, we must conclude that the operator bears the φ-features of *yo* since those φ-features are spelled out on *estoy*.

(261) *Kobiana subject-verb agreement*[35]

a. *No subject focus*
á-ndékk-i
2SG-walk-PFV
'You walked.'

b. *Subject focus*
áyì **ée**-ndékk-ən-i
2SG 3SG.FOC-walk-FOC-PFV
'It's you who walked.'

In (261a), the 2nd person singular subject is not focused and the verb bears the subject agreement prefix *á-*. In (261b), the subject is focused and the subject agreement prefix is changed to *ée-*. In addition, the verb in (261b) takes the focus suffix *-ən*, which is limited to subject focus clauses (John Merrill, p.c.).[36] The full paradigm of basic subject agreement prefixes is given in table 3.32 and the paradigm found with subject focus is given in table 3.33 (both are taken from Voisin 2015:368).

	SG	PL
1	má-	ngée-
2	á-	káa-
3	à-	náà-

Table 3.32: Kobiana φ-agreement

35. All Kobiana examples in this section come from John Merrill's fieldwork on Kobiana (p.c.), unless otherwise noted.

36. In clauses with non-subject focus, the verb takes normal subject agreement and there is a separate focus marker *á* which comes between the focused XP and the rest of the clause, as shown in (i).

(i) *Non-subject focus*
jufáah á à-gó-i
dog FOC 2SG-be-PFV
'It's a DOG.'

I leave a complete analysis of secondary focus marking (*-ən* vs *á*) to later work.

	SG	PL
1	mé-	ngéena-
2	ée-	káana-
3	áma-	náàná-

Table 3.33: Kobiana subject focus agreement

There are two crucial observations with regards to the two φ-agreement paradigms above. The first is that the subject focus paradigm in table 3.33 retains all φ-feature contrasts present in the basic paradigm in table 3.32. Assuming that subject focus in Kobiana involves an Ā-feature like [FOC], I conclude from this observation that there is no φ-impoverishment in the context of Ā-features in Kobiana.

The second observation is that the Kobiana subject focus φ-agreement paradigm is not transparently segmentable. While the plural part of the paradigm could be argued to be composed of the basic subject agreement prefix plus /na/, this is not the case for the singulars, where there is no readily available analysis in terms of multiple morphemes. In addition, the tone of the /na/ syllable in the plural is not consistent across the paradigm. From this I conclude that the each marker in the subject focus paradigm is a single unanalyzable prefix.

In the current theory, I argue that this means Kobiana has two sets of φ-agreement vocabulary items, shown in (262a)

(262) *Kobiana agreement VIs*

a. má-, á-, à-, ngée-, káa-, náà- ↔ [φ, Agr]

b. mée-, ée-, áma-, ngéena-, káana-, náàná- ↔ [φ, Ā, Agr]

The first realizes just a set of φ-features, and is shown in (262a). The second set realizes a set of φ-features and an Ā-feature, as shown in (262b), and will block insertion of the first set of VIs whenever the subject bears an Ā-feature.

The fact that full φ-agreement and Ā-exponence can coexist in the same Ā-context in a language like Kobiana provides a counterexample to a generalization made by Lahne (2008) in her investigation of morphological reflexes of successive cyclic Ā-movement.

(263) *Lahne's Generalization* (Lahne 2008:60)

When a language shows different exponents in movement and non-movement contexts, then the marker appearing in the context of movement is less specific than the marker appearing in non-movement contexts (= retreat to the general case, emergence of the unmarked)

Lahne's derivation of this generalization involves impoverishment. However, her account locates impoverishment in the narrow syntax, instead of in the morphology. Specifically, she links impoverishment in movement contexts to probes that force movement of their goal to their specifier. She argues that when a probe forces movement of its goal, the featural trigger of movement is deleted. Thus, Lahne's notion of impoverishment differs from the type of impoverishment invoked here.

However, problematic for (263), Kobiana actually exhibits a *more specific* set of markers in the Ā-movement context. This reinforces the conclusion that the existence of a language like Kobiana, and the general independence of φ-impoverishment and Ā-exponence, is a strong argument for the morphological account of anti-agreement developed in this dissertation. See Zentz (2015) for further counterexamples to Lahne's Generalization.

If my analysis of Kobiana is on the right track, then we have a completely filled in the two by three way typology of the interaction between φ-impoverishment and Ā-exponence, as shown in table 3.34.

		φ-impoverishment		
		TOTAL	PARTIAL	NONE
Ā-exponence	YES	Abaza	Tashlhit	Kobiana
	NO	Fiorentino	Lubukusu	Spanish

Table 3.34: Typology of Ā-exponence and impoverishment (complete)

For languages other than the Spanish-type, Ā-features have some effect on the morphological form of φ-agreement. However, a puzzle emerges for Spanish-type—why is there is no φ-impoverishment *or* Ā-exponence? There are two possible solutions to this puzzle. First, as I have assumed, it could be that Spanish φ-probes are Ā-sensitive and it is simply the case that there is φ-impoverishment in the context of Ā-features and there is no morphology that realizes those Ā-features.

Alternatively, we could posit that Spanish φ-probes are *not* Ā-sensitive; that is, they do not interact and copy back Ā-features from their goals, precluding any φ-impoverishment and Ā-exponence. This approach would reframe the typology in table 3.34 in the way shown in table 3.35.

The problem with this alternative is that it actually underdetermines which analysis should apply to a language like Spanish. Since φ-impoverishment and Ā-exponence still vary independently in the Ā-sensitive languages, we predict an Ā-sensitive language to exist in which there is no morphological outcome of this sensitivity. It is also hard to see what types of diagnostics would distinguish the difference between the two highlighted cells in 3.35. Therefore, a theory which includes variation in the Ā-sensitivity of φ-agreement is less restrictive than a theory which does not include such variation.

		φ-impoverishment		
		TOTAL	PARTIAL	NONE
Ā-sensitive	Ā-exponence – YES	Abaza	Tashlhit	Kobiana
	Ā-exponence – NO	Fiorentino	Lubukusu	??
Ā-insensitive	Ā-exponence – NO	n/a	n/a	Spanish

Table 3.35: Alternative typology of Ā-exponence and φ-impoverishment

The typology in table 3.34 falls out naturally if Ā-sensitivity is simply a property of φ-probes in general, and is not subject to crosslinguistic variation. I will refer to the hypothesis that this is the case as the THE Ā-SENSITIVITY UNIFORMITY HYPOTHESIS, given in (264).

(264) *The Ā-Sensitivity Uniformity Hypothesis*
All φ-probes are Ā-sensitive—they interact with Ā-features on their goal(s). There is no crosslinguistic variation in this property.

Whenever a φ-probe agrees with a goal bearing both [φ] and [Ā], both feature sets are copied back. Variation resides in how a language responds morphologically to this process. In the next chapter, I explore the consequences of this hypothesis.

3.8 Summary

In this chapter, I examined the range of morphological outcomes of a φ-probe that has interacted with a goal bearing [φ] and [Ā]. There are several important results of this study.

First, I showed that impoverishment in the context of Ā-features can be either *total*, deleting all φ-feature contrasts, or *partial*, deleting only a subset of φ-features. I further showed that the set of possible impoverishment rules in the context of Ā-features is constrained by an implicational hierarchy, the Feature Impoverishment Hierarchy (FIH), repeated below.

(265) *Feature Impoverishment Hierarchy (FIH)*
PERSON ≪ GENDER ≪ NUMBER

The FIH dictates that an impoverishment rule that deletes feature [X] must also delete all features to the left of [X]. In other words, the FIH requires that a rule may not delete [GENDER] without also deleting [PERSON]. However, a rule that deletes [GENDER] and

[PERSON] while leaving [NUMBER] in place conforms to the FIH. I showed that the FIH can be derived with two assumptions: one regarding the structure of φ-feature sets and one regarding the way that impoverishment rules interact with φ-feature sets.

Following much work on the structure of φ-features, I assume that φ-bundles are not flat, but instead have rich internal structure. Specifically, I followed Campbell (2012) in arguing for a two-dimensional representation of φ-feature: φ-categories such as person number and gender are arranged in a dominance hierarchy. Within categories, subclasses of features are arranged in entailment relations. This rich two-dimensional structure thus captures implicational relationships between categories and between subfeatures within categories. The entire structure is given below in (266).

(266) *Feature geometry for [φ]*

$$\begin{bmatrix} \varphi_{\mathrm{N}} & \text{———} & \pm\textsc{plural} & & \\ | & & & & \\ \varphi_{\mathrm{G}} & \text{———} & \pm\textsc{animate} & \text{———} & \pm\textsc{feminine} \\ | & & & & \\ \varphi_{\mathrm{P}} & \text{———} & \pm\textsc{participant} & \text{———} & \pm\textsc{author} \end{bmatrix}$$

We can derive the FIH with a single assumption about how impoverishment interacts with (266). Specifically, I proposed that impoverishment is limited to targeting φ-nodes in this geometry, and cannot target subfeatures within categories independently.

(267) *The φ-deletion constraint*
An impoverishment rule that targets a φ-features in the context of [Ā] may only delete φ-nodes.

Taking impoverishment to be deletion of a φ-node and delinking/deletion of all nodes dominated by or which entail the deleted node, the φ-deletion constraint limits possible φ-impoverishment rules to three, shown below.

(268) *Possible φ-deletion targets*

a. $\begin{bmatrix} \varphi_{\mathrm{N}} \\ | \\ \varphi_{\mathrm{G}} \\ | \\ \varphi_{\mathrm{P}} \end{bmatrix}$ b. $\begin{bmatrix} \varphi_{\mathrm{N}} \\ | \\ \varphi_{\mathrm{G}} \\ | \\ \varphi_{\mathrm{P}} \end{bmatrix}$ c. $\begin{bmatrix} \varphi_{\mathrm{N}} \\ | \\ \varphi_{\mathrm{G}} \\ | \\ \boxed{\varphi_{\mathrm{P}}} \end{bmatrix}$

Beyond partial impoverishment, I showed that in some languages, impoverishment is conditioned by the presence of a specific φ-feature in the targeted bundle. For example, in Ben Tey, person and number agreement is leveled when a focused subject is 1st or 2nd person, but number agreement is present when the focused subject is 3rd person. I argued that this pattern results from a requirement on Ben Tey φ-impoverishment that it only target bundles containing the feature [+PARTICIPANT], as shown below.

(269) *Ben Tey impoverishment*

$$\left[\begin{array}{l} \varphi_{\text{N}} \\ \ \ | \\ \varphi_{\text{P}} \text{ — } +\textsc{part} \end{array}\right] \rightarrow \ \emptyset \ / \ [\_\_, \textsc{foc}, \text{Asp}]$$

Complex impoverishment rules like the one in (269), above, must still conform to the φ-deletion constraint. Thus, such rules may result in the deletion of the φ-feature that triggers the impoverishment rule, as is the case in Ben Tey.

Taken together, the patterns of partial and complex impoverishment militate strongly against an analysis of partial anti-agreement as partial syntactic agreement across Ā-phenomena, and therefore support the morphological view of anti-agreement argued for in this dissertation. In following two chapters, I examine the distribution of anti-agreement, and show that these facts also support a morphological theory.

Chapter 4

The Distribution of Anti-Agreement

4.1 Introduction

The core proposal of this dissertation is that φ-probes are sensitive to whether or not their goals bear Ā-features. When a φ-probe finds a DP with an Ā-feature, that probe copies back both [φ] and [Ā] from the DP, as shown in (270). It is this ability of φ-probes to copy back Ā-features from their goals that leads to anti-/*wh*-agreement.

(270) *Ā-sensitive φ-agreement*

$[\ \ldots\ \mathrm{H}_{[\mathrm{u}\varphi]}\ \ldots\ \mathrm{DP}_{[\varphi,\ \bar{\mathrm{A}}]}\ \ldots\ ]$

φ+Ā

The cooccurrence of [φ] and [Ā] can lead to different morphological outcomes crosslinguistically. In many languages, the presence of Ā-features in the same bundle as φ-features leads to φ-impoverishment, but it need not do so. Furthermore, the Ā-feature copied back to the φ-probe in (270) may be morphologically realized.

Going forward, I will adopt the hypothesis that all φ-probes are Ā-sensitive, repeated here in (271).

(271) *The Ā-Sensitivity Uniformity Hypothesis (ASUH)*

All φ-probes are Ā-sensitive—they interact with Ā-features on their goal(s). There is no crosslinguistic variation in this property.

The ASUH is attractive because it keeps the syntax of agreement *uniform* across languages. Whenever *any* φ-probe encounters a goal that has an Ā-feature, that feature will be interacted with and therefore copied back to the probe. The syntactic difference between non-

Ā-contexts with full agreement and Ā-contexts with potentially impoverished agreement is simply the presence of Ā-features on the goal of φ-agreement in the latter contexts.

There are two consequences of the ASUH that make important predictions and separate my analysis from syntactic accounts of anti-/*wh*-agreement. First, because all φ-probes are always Ā-sensitive, Ā-sensitivity does not depend on Ā-movement. This makes the prediction that we should find Ā-sensitivity effects that are triggered by DPs which do not undergo Ā-movement. Second, the property of Ā-sensitivity is not dependent on a particular structural relation between the probe and the goal other than the regular one required by Agree—c-command and goal accessibility. This makes the prediction that we should find languages where DPs in different structural configurations can trigger Ā-sensitivity effects on the same probe, as long as those DPs are able to act as goals for that probe.

In this chapter, I show that these predictions are confirmed by generalizations that emerge from the crosslinguistic survey upon which this dissertation is based (see chapter 1). First, in section 4.2, I examine data related to the Irrelevance of Movement generalization, repeated here in (272).

(272) *Irrelevance of Movement generalization*

Anti-agreement does not require Ā-movement of the would-be agreement controller.

I show that there are cases of anti-/*wh*-agreement triggered by DPs which do not undergo Ā-movement but nonetheless bear Ā-features. I first show that the Uralic language Tundra Nenets has true *wh*-in-situ, yet object *wh*-phrases and focused objects trigger anti-agreement. I then show that in Abaza, pronouns bound by Ā-operators control *wh*-agreement forms, instead of controlling agreement that reflects the φ-features of their binders. In other words, these bound pronouns trigger φ-impoverishment on the probes they agree with. I argue that this results from the requirement that bound pronouns match the features of their binders. This requirement means that bound pronouns in Abaza must match their antecedents in [φ] and [Ā] features. Given this, probes that agree with the bound pronouns should exhibit *wh*-agreement, as any probe would exhibit in the same context in Abaza.

In section 4.3, I examine the relationship between Ā-movement and anti-agreement in two languages, Dinka and the Austronesian language Selayarese (ISO: `sel`, Indonesia). What these two languages show is that there is not a particular structural configuration associated with Ā-movement that triggers Ā-sensitivity effects. I first return to the observation that I made about Dinka in chapter 3— syntactically identical movement operations differ as to whether they trigger anti-agreement. Topicalization does not trigger anti-agreement, while the Ā-movement involved in the derivation of *wh*-questions, relativization and clefting does so. This is related to the Not All Ā-features generalization, repeated here in (273).

(273) *Not All Ā-features generalization*
Anti-agreement may be limited to certain types of Ā-constructions.

I derive this asymmetry by allowing impoverishment rules to refer to Ā-features more specific than the high level feature [Ā]. The feature [TOP], which triggers topicalization, does not trigger impoverishment, while the feature [OP], involved in *wh*-questions, relativization and clefts, does so. I further show that there is an asymmetry between long distance and local topicalization. While the final movement step of topicalization does not trigger anti-agreement, intermediate steps do so. I derive this asymmetry by appealing to separate impoverishment rules that make reference to a difference between matrix and embedded C.

I then show that in Selayarese, the φ-probe on T is targeted by φ-impoverishment in the context of [Ā] and that T can agree with either the internal or external argument. Crucially, agreement with T is not parasitic on movement to a specific structural position. In fact, the hierarchical relationship between the external and internal arguments does not change in the different agreement and anti-agreement contexts. What is important for Selayarese, therefore, is T interacting with [φ] and [Ā], and not the structural relationship between the Ā-moved DP and T.

4.2 Ā-movement is not a precondition of Ā-sensitive agreement

In the account of Ā-sensitive agreement effects developed here, the connection between Ā-movement and anti-/*wh*-agreement is indirect. The sole precondition on anti-/*wh*-agreement surfacing is the interaction of a φ-probe with a goal bearing an Ā-feature; it is immaterial to the calculus of Ā-sensitive agreement why that Ā-feature is present on the goal. A φ-probe will copy back any Ā-feature it finds on a goal, whether or not that Ā-feature subsequently triggers movement of the goal.

This property of the morphological theory makes a crucial prediction. Namely, it should be possible to find cases of anti-/*wh*-agreement that are triggered by elements that do not themselves undergo Ā-movement. This is indeed the case, and is confirmed by the Irrelevance of Movement generalization (see 272, above)

In this section, I present two case studies from languages in which anti-agreement is triggered in the absence of Ā-movement. First, in section 4.2.1, I examine anti-agreement triggered by in situ *wh*-objects in the Uralic language Tundra Nenets (ISO: `yrk`, Russia). Tundra Nenets displays object agreement for number with certain objects. Object agreement with focused and *wh*-objects, however, is impossible. Crucially, *wh*-phrases are truly in situ: they do not move to a dedicated positions and may be located inside islands. Thus, a covert movement account of *wh*-in-situ in the language is ruled out, and we must conclude that *wh*-words that trigger anti-agreement do not undergo Ā-movement at all.

Second, in section 4.2.2, I show that Abaza exhibits anti-/*wh*-agreement triggered by pronouns bound by Ā-operators. I refer to this phenomenon as *indirect anti-agreement.* Like in Tundra Nenets, we have an element which does not undergo Ā-movement triggering an Ā-sensitive agreement effect. I argue that bound pronouns in Abaza must match their binders in both [φ] and [Ā], and therefore, when a probe finds a pronoun bound by an element with an Ā-feature, that bound pronoun triggers anti-agreement.

Taken together, the Nenets and Abaza data strongly support a theory of anti-agreement in which Ā-sensitive agreement effects are dissociated from Ā-movement altogether. While in the majority of cases Ā-movement will accompany Ā-sensitive agreement, Ā-movement is not a necessary precondition of the effects. The account of anti-agreement developed here is just such a theory.

4.2.1 *Wh*-in-situ and anti-agreement in Tundra Nenets

Tundra Nenets (ISO: yrk) is a Uralic language spoken in Siberia (Nikolaeva 2014). The language is agglutinative and SOV.[1] Intransitive verbs display subject agreement for person and number, as shown in for the verb *mənc°ra-* ‘to work’ in table 4.1.[2]

	SINGULAR	DUAL	PLURAL
1	mənc°raə-d°m	mənc°ra°-n′ih	mənc°ra°-waq
2	mənc°raə-n°	mənc°ra°-d′ih	mənc°ra°-daq
3	mənc°ra°	mənc°raə-x°h	mənc°ra°-q

Table 4.1: Tundra Nenets intransitive subject agreement (*mənc°ra-* ‘to work’; Nikolaeva 2014:78)

In addition to subject agreement, transitive verbs may also be inflected for object agreement. When there is no object agreement, transitive verbs take the same inflection as shown in table 4.1. Object agreement marks number (singular, dual, and plural) but not person. Singular objects are not marked by an overt affix, though, as seen in table 4.2 for

1. In Tundra Nenets orthography, <°> represents a reduced vowel that either pronounced as a very short mid central vowel or as additional length to the preceding consonant (Nikolaeva 2014:18).

2. The paradigm presented in table 4.1 is the so called *subjective* conjugation. There is a second paradigm, the so called *reflexive* conjugation, which I will not discuss here. Intransitive verbs are lexically classified as belonging to one of these two inflection types. See Nikolaeva (2014) for discussion.

the verb *me-* meaning 'to do, make'. Instead, the affixes in the paradigm differ from the basic intransitive forms. (The feature labels in tables 4.2–4.4 indicate the person/number of the subject, while the number of the object is indicated in the caption.)

	SINGULAR	DUAL	PLURAL
1	meə-w°	me°-m′ih	me°-waq
2	meə-r°	me°-r′ih	me°-daq
3	me°-da	me°-d′ih	me°-doh

Table 4.2: Tundra Nenets singular object agreement (*me-* 'to do, make'; Nikolaeva 2014:79)

Dual and plural objects are marked by distinct affixes which occur between the verb stem and subject agreement. The affix *-xəyu* marks dual objects, as shown in table 4.3. The suffix *-yə/-y°* marks plural objects, as shown in table 4.4.

	SINGULAR	DUAL	PLURAL
1	meŋa-**xəyu**-n°	meŋa-**xəyu**-n′ih	meŋa-**xəyu**-naq
2	meŋa-**xəyu**-d°	meŋa-**xəyu**-d′ih	meŋa-**xəyu**-naq
3	meŋa-**xəyu**-da	meŋa-**xəyu**-d′ih	meŋa-**xəyu**-doh

Table 4.3: Tundra Nenets dual object agreement (*me-* 'to do, make'; Nikolaeva 2014:79)

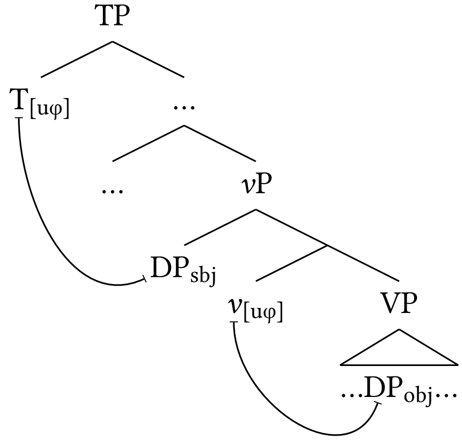
	SINGULAR	DUAL	PLURAL
1	meŋa-**yə**-n°	meŋa-**y**°-n′ih	meŋa-**yə**-naq
2	meŋa-**y**°-d°	meŋa-**y**°-d′ih	meŋa-**y**°-naq
3	meŋa-**y**°-da	meŋa-**y**°-d′ih	meŋa-**y**°-doh

Table 4.4: Tundra Nenets plural object agreement (*me-* 'to do, make'; Nikolaeva 2014:79)

I take subject agreement to be spell out a φ-probe on T in both transitive and intransitive clauses. I take object agreement to spell out a distinct φ-probe hosted on *v*. I assume transitive subjects are merged in Spec-*v*P. This analysis is shown in (274).[3]

3. For sake of exposition, I have represented the structure as head initial, even though Nenets is head final.

(274) *Agreement in Nenets transitive clauses*



I assume that the verb undergoes head movement to T, creating a single word. Object agreement spells out number features on *v*, while subject agreement realizes φ-features on T. Some sample VIs are given in (275) for subject agreement and (276) for object agreement.[4]

(275) *Tundra Nenets subject agreement VIs (partial)*

a. *1st singular subject, no object agreement*
-d°m ↔ [−PART, -AUTH, -PL, agr, T]

b. *1st singular subject, singular object agreement*
-w° ↔ [−PART, -AUTH, -PL, agr, T] / [−PL, Agr, *v*] __

c. *1st singular subject, plural/dual object agreement*
-w° ↔ [−PART, -AUTH, -PL, agr, T] / [+PL, Agr, *v*] __

d. *3rd singular subject, no object agreement*
Ø ↔ [−PART, -AUTH, -PL, agr, T]

e. *3rd singular subject, any object agreement*
-da ↔ [−PART, -AUTH, -PL, agr, T] / [φ, Agr, *v*] __

4. I assume that dual is composed of the features [+PL] and [+DUAL]. In the formalism used here: [φ_N — +PL — +DUAL].

(276) *Tundra Nenets object agreement VIs (partial)*

a. *Singular object agreement*
-Ø- ↔ [−PL, Agr, *v*]

b. *Plural object agreement*
-yə- ↔ [+PL, Agr, *v*]

c. *Dual object agreement*
-xəyu- ↔ [+PL, +DUAL, Agr, *v*]

I propose that subject agreement affixes that have a different form in the context of object agreement are contextual allomorphs of T in the presence of φ-features on *v*. This behavior is seen in the VIs in (275). A first person singular subject is realized as *-d°m* when there is no object agreement (see table 4.1), while the same type of subject is exponed with the suffix *-w* in the context of a singular object (see table 4.2) or *-n°* in the context of a plural or dural object (see tables 4.3 and 4.4, respectively).

Not all objects are able to control object agreement; Nikolaeva (2014) describes the distribution of object agreement as depending on both lexical and semantic factors. Crucially for our purposes here, three classes of object *never* control object agreement: *wh*-phrases, as in (277); phrases marked with the focus *-r'i* 'only', as in (278); and focused DPs, as with the contrastively focused object in (279) or the answer to the object *wh*-question in (280).

(277) *Object* wh-*question*

a. **ŋəmke-m** taxabta°?
what-ACC break.3SG
'What did he break?' (Nikolaeva 2014:204)

b. ***ŋəmke-m** taxabta°-**da**?
what-ACC break-3SG>SG.OBJ
'What did he break?' (Nikolaeva 2014:204)

(278) *Object marked with -r'i*

a. Wera-**r'i**-m ladə°
Wera-only-ACC hit
'He only hit Wera' (Nikolaeva 2014:205)

b. *Wera-**r'i**-m lad°ə-**da**
Wera-only-ACC hit-3SG>SG.OBJ
Intended: 'He only hit Wera' (Nikolaeva 2014:205)

(279) *Contrastively focused object*

a.

ti-m	pedara-x°na	xadaə-n°
reindeer-ACC	forest-LOC	kill-2SG

'It was a REINDEER that you killed in the forest.' (Nikolaeva 2014:206)

b.

***ti-m**	pedara-x°na	xadaə-r°
reindeer-ACC	forest-LOC	kill-2SG>SG.OBJ

Intended: 'It was a REINDEER that you killed in the forest.' (Nikolaeva 2014:206)

(280) *Answer to object* wh-*question*

a. Question: Whom did he hit?

Wera-m	ladə°
Wera-ACC	hit

'He hit Wera' (Nikolaeva 2014:206)

b. Question: Whom did he hit?

***Wera-m**	lad°ə-da
Wera-ACC	hit-3SG>SG.OBJ

Intended: 'He hit Wera' (Nikolaeva 2014:206)

Matić and Nikolaeva (2014) argue what these different contexts share in common is the presence of a focus feature, [FOC], on the object DP. Descriptively, then, the presence of an Ā-feature blocks the ability for an object to control agreement. I take this to be an Ā-sensitive agreement effect.

I propose that the lack of object agreement in these contexts is due to impoverishment of φ-features on *v* in the context of [FOC]. When the φ-probe on *v* encounters an object DP bearing [φ] and [FOC], both sets of features are copied back to the probe. In the morphology, the impoverishment rule in (281) is triggered, deleting all φ-features on *v*.[5]

(281) *Nenets φ-impoverishment*

$[\varphi] \rightarrow \varnothing$ / [__, FOC, *v*]

This rule not only blocks the realization of object agreement with objects bearing the feature [FOC], it also affects the contextual realization of transitive subject agreement. This is because the rule will remove the context for the conditions that determine which subject agreement VI is inserted. For example, because the impoverishment rule in (281)

5. In (281), I use [φ] to represent total φ-impoverishment, instead of an articulated φ-structure like the ones argued for in chapter 3. This is for simplicity, and I take (281) to be equivalent to the impoverishment rule in (i).

deletes the φ-features on *v* with object *wh*-phrases, it will block the insertion of the third person singular subject agreement suffix *-da* in those questions, as seen in (277b), above.

However, because the rule is specified as applying in the context of a [FOC] feature on *v*, this rule will not affect subject agreement which is located on T when the *subject* bears [FOC]. This is indeed what we see in Nenets—subjects marked by the focus suffix *-r'i*, for instance, control agreement.

(282) *Subject marked with -r'i triggers agreement*

n'awako-h n′awotə-qma-xəd°nta **sǣw°kə-r'ida** m'ernor'ə-**d°q**
hare.DIM-GEN run-PFV.NMLZ-ABL.3SG little.eye-only.PL.3SG.POSS open.wide-3PL
'The little hare's eyes opened wide after running.' (Nikolaeva 2014:399)

I conclude that anti-agreement in Tundra Nenets is limited to [FOC] marked objects. Theoretically, this means that impoverishment rules are limited to a subset of agreement heads: *v* is targeted for impoverishment, even though T is not. I discuss this sort of asymmetry further in the next chapter.

Tundra Nenets anti-agreement is significant because it occurs in the absence of syntactic movement. In all four cases given above, the [FOC] marked DP is found in situ in its base position. Focus is prosodically marked; constituents bearing the feature [FOC] do not have to front, nor do they need to appear in any others specific position in the clause. This can be seen clearly from the three *wh*-questions in (283).

(283) Wh-*phrases need not front*

a. n'er°c'u-naq **xīb'a** tǣw°ra-ca?
towards-1PL who reach-INTER
'Who reached us?' (Nikolaeva 2014:265)

b. tən'ana **xīb'a-h** n'ah ləx°nəə-n°?
there who-GEN with talk-2SG
'With whom are you talking there?' (Nikolaeva 2014:266)

c. t'en'ana Wera t'uku° ti-m **xən'ana** xada-sa-da?
yesterday Wera this reindeer-ACC where kill-INTER-3SG>SG.OBJ
'Where did Wera kill this reindeer yesterday?' (Nikolaeva 2014:266)

(i) $\begin{bmatrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{P}} \end{bmatrix} \rightarrow \varnothing \; / \; [\_\_, \textsc{foc}, v]$

Throughout this chapter, I use [φ] in impoverishment rules as a shorthand for deletion of all φ-nodes in a φ-geometry, and articulated φ-geometries when a partial impoverishment rule is needed.

Wh-phrases also stay in situ in embedded clauses. As seen in (284) situ *wh*-phrases may be interpreted within the embedded clause.

(284) *Embedded* wh-*in-situ with embedded scope*

a.

[$_{\text{CP}}$	t'ukoxəna	xība-h	yil'e-wa-m	]	mən'	°t'en'ewaə-d°m
	here	who-GEN	live-PFV.NMLZ-ACC		I	know-1SG

'I know who lives here.' (Nikolaeva 2014:306)

b.

[$_{\text{CP}}$	t'uku°	n'enec'°-m	xīb'a	ta-wikeda	]	mən'
	this	person-ACC	who	bring-PROB.PST.3SG>SG.OBJ		I

°yexaraə-d°m
ignore-1SG

'I don't know who brought this man.' (Nikolaeva 2014:307)

Embedded in-situ *wh*-phrases may also take matrix scope, as shown in (285)

(285) *Embedded* wh-*in-situ with matrix scope*

a.

[$_{\text{CP}}$	Wera-h	ŋəmke-m	s′erta-qma-m	]	wad′e-ca?
	Wera-GEN	what-ACC	do-PFV.NMLZ-ACC		tell-INTER

'What did he say that Wera had made?' (Nikolaeva 2014:309)

b.

[$_{\text{CP}}$	xīb′a-m	Wasya-h	ladə-ma-m	]	Wera	xet°ə-da
	who-ACC	Wasya-GEN	hit-PFV.NMLZ-ACC		Wera	say-3SG>SG.OBJ

'Whom did Wera say Wasya hit?' (Nikolaeva 2014:309)

Taking these facts together, therefore, Tundra Nenets *wh*-phrases and other DPs marked by [FOC] are stay (apparently) in situ and yet still trigger object anti-agreement in transitive clauses.

The ability for surface in situ [FOC]-marked constituents to trigger anti-agreement offers an important testing ground for theories of anti-agreement. This is because, analytically, there are two possible approaches to *wh*-in-situ: either the *wh*-phrase moves covertly to its scopal position by the time it is to be interpreted at LF (Karttunen 1977, among others), or it is interpreted truly in situ by some mechanism other than *wh*-movment (Hamblin 1973; Rooth 1985, 1992, a.o.). Both types of derivation have been found to be available crosslinguistically (Cheng 2009).

Theories of anti-agreement diverge in a crucial way in their predictions of which derivation of *wh*-in-situ should be accompanied by Ā-sensitive agreement effects. Movement based accounts of anti-agreement, such as those grounded in anti-locality, feature strength, or Criterial Freezing, predict that only covertly moved *wh*-phrases should be capable to trigger anti-agreement. This is because these theories require a derivation involving movement—all involve some constraint on chains that blocks agreement. The morphological theory argued for here has no such requirement. Because the only precondition on anti-/*wh*-agreement is the presence of an Ā-feature on the goal of agreement, as long as in situ *wh*-phrases have some sort of Ā-feature, they should be able to trigger anti/*wh*-agreement without undergoing movement.

In fact, there is compelling evidence that in situ *wh*-phrases do not undergo covert *wh*-movement in Tundra Nenets, but instead are licensed in their base position. This evidence comes from the fact that in situ *wh*-phrases may take matrix scope out of wide variety of islands. As shown in (286), *wh*-phrases may take matrix scope out of a relative clause. They may also take matrix scope out of the complement of a noun, (287).

(286) Wh-*in-situ in relative clause island with matrix scope*

a. [$_{DP}$ [$_{CP}$ **xən′ana** yil′e-wi°] n′enec′°] xəya
where live-PFV.PTCP man go.3SG
lit. 'The man who lived where left?' (Nikolaeva 2014:311)

b. [$_{DP}$ [$_{CP}$ **xīb′a-h** xada-wi°] ti-m] məne-ca-n°?
who-GEN kill-PFV.PTCP reindeer-ACC see-INTER-2SG
lit. 'You saw the reindeer that killed by whom?' (Nikolaeva 2014:311)

(287) Wh-*in-situ in CPNC island with matrix scope*
[$_{DP}$ [$_{CP}$ **xīb′a-h** n′e-m me-wa-h] yun°-m] ŋəmt°ə-n°?
who-GEN woman-ACC take-IPFV.NMLZ-GEN news-ACC hear-2SG
'Who$_i$ did you hear the news that _$_i$ got married?' (Nikolaeva 2014:313)

Wh-in-situ may also take matrix scope out of adjunct islands, as shown in (288).

(288) Wh-*in-situ in adjunct island with matrix scope*
Masha [$_{CP}$ Wera-h **ŋəmke-m** xada-qma-xəd°] to-sa
Masha Wera-GEN what-ACC kill-PF.AN-ABL come-INTER.PST.3SG
'What$_i$ did Masha come after Wera killed _$_i$?' (Nikolaeva 2014:312)

Finally, the same is true of *wh*-in-situ inside a sentential subject. In (289), the *wh*-word *s′ax°h* 'when' takes matrix scope outside of a sentential subject of the verb *məy°bta°* 'cheer up.'

(289) Wh-*in-situ inside sentential subject with matrix scope*
[$_{CP}$ pidər° **s′ax°h** to-qma-r°] s′iqm′i məy°bta°
you when come-PFV.NMLZ-2SG 1.ACC cheer.up
'When was it that you came that cheered me up?' (Nikolaeva 2014:313)

The lack of island effects observed in the data above argue strongly against a covert movement analysis of *wh*-in-situ in Tundra Nenets. Instead, I assume that they are interpreted in their base position without undergoing covert movement.[6]

These data are problematic for theories of Ā-sensitive agreement effects that hold these effects are tied to Ā-movement. Put simply, such accounts cannot provide a unified analysis of the lack of φ-agreement with Ā-marked phrases in languages such as Tarifit and Fiorentino and the lack of φ-agreement with Ā-marked phrases in Tundra Nenets. This is because, in Tundra Nenets, the DPs that trigger anti-agreement do not actually undergo Ā-movement. For movement based accounts, such as those grounded in anti-locality, feature strength, or Criterial Freezing, such movement is the crucial factor which determines what DPs are able to trigger anti-agreement and those which are not. For example, in an anti-locality based account of anti-agreement like that of Erlewine (2016), the lack of agreement with an Ā-feature bearing phrase is due to a specific constraint which blocks movement of that phrase from a position that would normally control agreement. Thus, in order to undergo Ā-movement, such a phrase must move from some other position in the structure. Obviously, such an account cannot be extended to the Tundra Nenets data, given that there is clear evidence that in situ Ā-marked phrases do not even undergo covert movement. Thus, without such movement to rely on, an anti-locality based account would need to posit a distinct reason for the lack of agreement with in situ Ā-marked phrases in Tundra Nenets than the one that is responsible for the lack of agreement with moved Ā-marked phrases in a language like Fiorentino.

The purely morphological theory of anti-agreement, however, faces no such problem. The focus feature that occurs on in situ *wh*-phrases in Tundra Nenets is copied to the object agreement probe on *v*. In the morphology, impoverishment is triggered by [foc], deleting φ-features on *v* and rendering overt object agreement impossible. This is the exact same procedure that happens with *wh*-phrases that end up moving in languages like Fiorentino. For the morphological approach, the difference between moved *wh*-phrases and in situ *wh*-phrases is unrelated to whether or not a phrase triggers anti-/*wh*-agreement.

In the next section, I return to Abaza to examine facts that offer further support that there is no direct connection between the Ā-movement and Ā-sensitive agreement effects.

4.2.2 Abaza indirect anti-agreement

Abaza offers further confirmation of the prediction of the morphological theory that Ā-movement is not a necessary precondition on Ā-sensitive agreement. The relevant data come from contexts where a null pronominal that controls agreement is bound by a higher DP bearing Ā-features. In such situations, the agreement controlled by the null pronomi-

6. I do not take a position on how this interpretation is derived.

nal must take the appropriate *wh*-agreement form. I refer to this phenomenon as *indirect* wh-*agreement*, as the appearance of *wh*-agreement controlled by the null pronominal is dependent on construal with another DP with Ā-features. In this section, I demonstrate indirect *wh*-agreement in Abaza with data from possessive constructions.

Possessed nouns in Abaza take a prefix that indexes the φ-features of the possessor. These prefixes are identical in form to those used for ergative arguments on transitive predicates.[7]

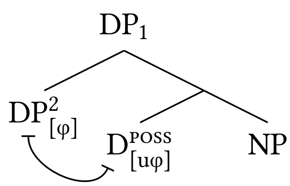
(290) *Abaza possessor agreement*

a. a-phas **l**-qas'a
DEF-woman 3SG.F.POSS-man
'the woman's husband' (O'Herin 2002:50)

b. (wara) **w**-nap'ə
2SG.M 2SG.M.POSS-hand
'your(M) hand' (O'Herin 2002:50)

I assume a traditional analysis of possessors in which they are located in specifier of the possessed noun's DP (Abney 1987) and I assume that in Abaza, possessive D bears a φ-probe that agrees with its specifier.

(291) *Structure of possession in Abaza*



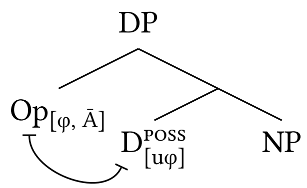
Possessor agreement also participates in the *wh*-agreement system. When a possessor serves as the head of a relative clause, the agreement prefix that cross-references that possessor on the possessed noun must be the *wh*-agreement prefix *z*-.

(292) Wh-*agreement with possessor relative operator*[8]
[$_{CP}$ [$_{DP}$ *Op*$_i$ **z**-tdzə] *pro* yə-w-xʷaʕ-z] a-qac'a$_i$
POSS.WH-house 2SG.M ABS.WH-2SG.M-buy-PST DEF-man
'the man whose house you bought' (O'Herin 2002:260)

7. Recall from chapter 2 that only 3rd person forms distinguish ergative agreement from absolutive agreement. For 1st and 2nd person agreement forms, the two paradigms are identical.
8. Brackets in this example are my addition.

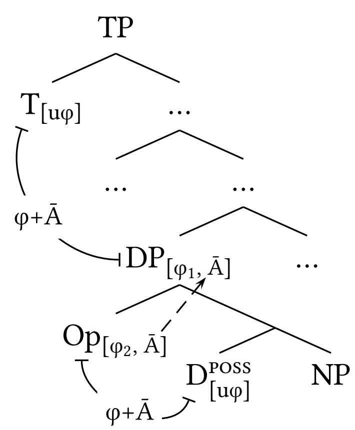
O'Herin (2002) argues that relative clauses in Abaza involve Ā-movement of a null relative operator to Spec-CP. When a relative operator serves as a possessor, it pied-pipes the DP that contains it to Spec-CP. Assuming that relative operators bear both [φ] and [Ā], the φ-probe on the possessive D head will interact with both these features, as shown in (293).

(293) *Probe on D_{POSS} interacts with [φ] and [Ā] on Op*



Interestingly, the verb *buy* in (292) also takes *wh*-agreement cross-referencing the entire pied-piped DP. Here, I assume this is because the Ā-feature on the null operator in Spec-DP percolates to the entire DP (Cowper 1987; Grimshaw 2000). In addition to forcing pied piping, percolation of [OP] to the DP-level means that the Ā-feature is available to φ-probes *outside* of the possessed DP, such as T in the case of (292). This is shown in (294). The dashed line indicates percolation of [Ā].

(294) *Agreement in Abaza possessor relativization*



The agree relations in (294) will give rise to *wh*-agreement exhibited in (292). Agreement between T and the possessed DP will result in absolutive *wh*-agreement as developed in chapter 2—the φ-features on T will be deleted by impoverishment, leading to the insertion of the agreement prefix *y*-. Likewise, agreement between D_{POSS} and the relative operator in Spec-DP will lead to the copying back of [$φ_2$] and [Ā]. Subsequently, impoverishment deletes φ-features from this head. Like in the case of ergative *wh*-agreement, this situation allows for the insertion of *z*-, which realizes the Ā-feature that remains.

While impoverishment explains the lack of φ-feature agreement in examples like (292), there is a puzzle with regard to the nature of the vocabulary items involved in the realization of D_{POSS}. Specifically, in chapter 2, I proposed that the ergative *wh*-agreement prefix *z-* has the VI in example (295).

(295) *Abaza ergative* wh-*agreement VI*
z- ↔ [Ā, Agr, *v*]

Because this VI is specified for the categorial feature [*v*], it should not be able to be inserted into the head D_{POSS}—the feature specification of the VI in (295) does not match the feature specification of that head. This problem is in fact more general because there are three more ergative agreement VIs specified for [*v*], given in (296).

(296) *Abaza ergative agreement VIs*
a. l- ↔ [-PL, +FEM, Agr, *v*]
b. a- ↔ [-PL, -ANIM, Agr, *v*]
c. r- ↔ [+PL, *v*]

As noted above, the possessive and ergative agreement paradigms are identical, meaning that the morphemes in (295) and (296) spell out agreement on *v* and possessive D. As it stands, the analysis that I developed in chapter 2 cannot account for this fact, given the presence of [*v*] on these VIs.

To my mind, there are two ways to reconcile this issue. The first is to posit two completely homophonous sets of vocabulary items, one specified for [*v*] and as in (295) and (296) and a second specified for [D_{POSS}], as shown in (297).

(297) *Abaza possessive agreement VIs (version 2)*
a. l- ↔ [-PL, +FEM, Agr, D_{POSS}]
b. a- ↔ [-PL, -ANIM, Agr, D_{POSS}]
c. r- ↔ [+PL, D_{POSS}]
d. z- ↔ [Ā, Agr, D_{POSS}]

This account is non-optimal in that it requires the presence of accidental homophony where there is no clear evidence that this is the case.

A second, alternative solution is to posit that the heads *v* and D_{POSS} share some feature that is referenced by a single set of vocabulary rules. This approach is shown in (298) on the next page, where I have referred to the feature as ERG.

(298) *Abaza possessive agreement and ergative VIs (version 3)*

a. l- ↔ [-PL, +FEM, Agr, ERG]

b. a- ↔ [-PL, -ANIM, Agr, ERG]

c. r- ↔ [+PL, ERG]

d. z- ↔ [Ā, Agr, ERG]

In the remainder of this section, I will adopt this analysis, though I will not develop it further in this dissertation. All that is necessary here is an approach that allows ergative agreement VIs to be inserted into two categorically distinct heads.

Returning to the structure of possessor relativization in Abaza, importantly, in O'Herin's analysis, the null relative operator has not moved from its base position in Spec-DP in (294), above. Instead, the entire possessed DP is targeted for movement to Spec-CP. Thus, movement of the operator cannot be responsible for the *wh*-agreement on the possessed noun. In and of itself, therefore, the data in (292) is an argument in favor of a morphological analysis of *wh*-agreement; theories in which Ā-sensitive agreement effects arise because of Ā-movement would need to posit an additional step of movement of the null operator. My account requires no such stipulation.

Beyond possessor relative clauses, however, a similar effect is found when a possessor is bound by a DP bearing Ā-features. In such cases, the bound possessor obligatorily triggers *wh*-agreement:

(299) Wh-*agreement with possessor bound by* wh-*word*

[$_{DP}$ *pro*$_i$	**z**$_i$-qk^{w}marga]	ayʃa	ac'axk^j	**dəzda**$_i$	yə-qa-z-chwaxəz
	POSS.WH-toy	table	under	who	3SG-PV-ERG.WH-hide

'Who$_i$ hid his$_i$ toy under the table?' (O'Herin 2002:272)

In (299), the *pro* possessor of the 'toy' is obligatorily interpreted as a variable bound by 'who'. This forces *wh*-agreement on the possessed noun. When there is full possessor φ-agreement, the null *pro* cannot act as a bound variable.

The puzzle that the data in (299) pose is why a null pronominal possessor should obligatorily trigger *wh*-agreement on the possessed noun when it is bound by a Ā-marked DP. In most cases of *wh*-agreement in Abaza we have seen so far over the course of this dissertation, the Ā-feature that triggers *wh*-agreement is inherent to the goal of the affected probe agrees with, in the sense that it is merged somewhere in the extended projection of that goal. This is true even in the case of *wh*-agreement possessor agreement in the possessor relative clause discussed above. The operator is merged with an Ā-feature, and that Ā-feature triggers *wh*-agreement on the possessive D head, even though the operator itself does not move.[9]

9. On the other hand, the Ā-feature that percolates to the higher DP that contains the operator in a posses-

It is generally accepted that (at least some) bound pronouns must match their binders in φ-features (Kratzer 2009; Rooryck and Vanden Wyngaerd 2011). I argue that this is the key to understanding how the bound pronoun in (299) triggers *wh*-agreement. What (299) shows us is that the null *pro* possessor must match its binder in more than just φ-features in Abaza; the bound *pro* must also have an Ā-feature for binding by the *wh*-phrase to be licit.

I implement the intuition that the bound pronoun matches its binder in both [φ] and [Ā] with the operation of Feature Transmission under binding developed by Kratzer (2009). Kratzer argues that bound pronouns are *minimal* pronouns that enter the syntactic structure without φ-features and subsequently acquire these features from their binder. Specifically, a bound pronoun receives its features from an intermediate λ-introducing head (e.g. *v*, C; henceforth 'binder'). This process is shown in (300).

(300) *Minimal pronouns receive φ-features from their binder*

AGREE

$[_{\text{HP}}\ \text{DP}^{i}_{[\varphi_1]}\ \ \text{H}^{\lambda i}_{[\varphi_1]}\ \ [\ \dots\ \textit{pro}^{i}_{[\varphi_1]}\ \dots\ ]]$

BINDING

As shown in (300), this process involves two subparts: Agree between the binder H and the DP in its specifier copies that DP's φ-features to the H.[10] Binding of *pro* by H then transmits those φ-features to *pro*.

I argue that this process should be extended to Ā-features borne by the DP in the specifier of H. In other words, when the DP in Spec-HP has [Ā], that feature will also be transmitted to the bound pronoun, as shown in (301).[11] The configuration in (301) leads to the obligatory *wh*-agreement triggered by pronouns bound by Ā-marked DPs.

sor relative is not inherent in the sense that the Ā-feature is merged on the operator, and not on the head of the larger DP containing that operator. Yet, that Ā-feature still manages to trigger *wh*-agreement on the verb.

10. Kratzer (2009), actually labels this step "Predication." However, because the actual operation reduces to Specifier-Head Agreement under binding in Kratzer's (2009:196, ex. 19) theory, I have decided to simply subsume it under the operation Agree here. What is crucial is that the features on the DP in Spec-HP are copied to H so that they can transmitted to *pro* when is bound by H.

11. Kratzer (2009:197) suggests that relative pronouns could result from Feature Transmission from H. If such an analysis of relative pronouns is possible, then it supports an analysis whereby Ā-features can be passed via Feature Transmission, as relative clauses involve Ā-dependencies.

(301) *Binding can transmit [Ā] and [φ]*

AGREE

$$[_{\text{HP}}\ \text{DP}^{i}_{[\varphi_1,\,\bar{\text{A}}_1]}\ \ \text{H}^{\lambda i}_{[\varphi_1,\,\bar{\text{A}}_1]}\ \ [\ \dots\ \textit{pro}^{i}_{[\varphi_1,\,\bar{\text{A}}_1]}\ \dots\ ]]$$

BINDING

When the possessive φ-probe agrees with a *pro* that has received [φ] and [Ā] via the process in (301), it will copy back [Ā] from that pronominal. This is the expected result, given the theory of Ā-sensitive agreement proposed here. In the morphology, the φ-features on the possessive D head are deleted by impoverishment, thus blocking insertion of full φ-agreement. This is what occurs in (299), above. Thus, cases of *wh*-agreement triggered by bound possessors are derived in the exact same was as *wh*-agreement with a Ā-marked subject or object.

Support for this account of indirect anti-agreement comes from examples like (302), which shows that binding is required for *wh*-agreement to be triggered by a null pronoun.

(302) *Binding is required for indirect* wh-*agreement*[12]

[$_{\text{CP}}$ **Op**$_i$ [$_{\text{TP}}$ t_i [$_{\text{DP}}$ ***pro***$_i$ ***y**$_i$/✓**z**$_i$-pa] bzəy
*3SG.M.POSS/POSS.WH-son good

də-z$_i$-bawa]] **aqac'a**$_i$ [$_{\text{DP}}$ ***pro***$_i$ ✓**y**$_i$/***z**$_i$-phas]]
ABS.3SG-ERG.WH-see man 3SG.M.POSS/*POSS.WH-wife

d-ʕa-y-dəd
3SG.ABS-PFV-3SG.M-get.DYN

'The man$_i$ [who$_i$ loves his$_i$ son] picked up his$_i$ wife.' (O'Herin 2002:274)

In (302), two null pronominal possessors trigger different types of agreement even though they are coindexed. The first, the null pronominal possessor of *pa* 'son' is bound by a relative operator and must control *wh*-agreement in the form of the prefix *z*-; it cannot control the expected normal form of 3sg masculine possessor agreement *y*-. The second null possessor is the possessor of *phas* 'wife'. Here, *wh*-agreement is impossible, even though the possessor is construed with the head of the relative clause, *aqac'a* 'the man' .

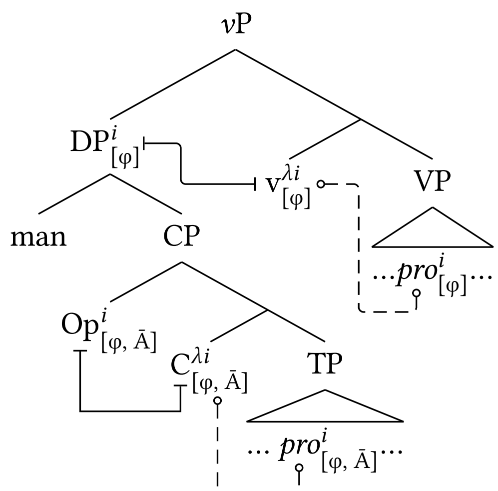
O'Herin (2002) argues that examples like (302) show that binding by an Ā-operator is the crucial requirement for indirect *wh*-agreement (Chomsky 1981). The possessor of 'son' in (302) is in such a configuration—it is coindexed with and c-commanded by a relative operator. The possessor of 'wife', however, is only coindexed with this relative operator, but not c-commanded by it, and therefore there is no *wh*-agreement on that noun.

In the current theory, the requirement that the operator must c-command a *pro* to trigger indirect *wh*-agreement means that that *pro* must be bound by a functional head

12. Brackets in this example are my addition.

that has agreed with a DP bearing Ā-features. In (302), the null possessor inside the relative clause is bound from C, which has agreed with the relative operator in its specifier, and therefore the relative clause internal possessor is transmitted [Ā] and triggers *wh*-agreement. On the other hand, the null possessor in the matrix clause is bound by *v*, which agrees with the DP containing that contains the relative clause in the matrix Spec-vP. This means that there is no Ā-feature on *v* to transmit to the matrix null *pro* possessor, and that *pro* does not trigger anti-agreement, even though it is construed with other nominals that do trigger anti-agreement. The structure of (302) is shown in (303).

(303) *Structure of example (302)*



In (303), solid lines represent Agree and dashed lines represent binding/feature transmission. Inside the relative clause, C agrees with the relative operator in its specifier, copying [φ, Ā] from that operator and then transmitting it to the bound pronoun. In the matrix clause, the binding functional head is *v*. That head agrees with the external argument, the DP that contains the relative clause. Because this DP only has [φ] and not [Ā] as well, the bound pronoun receives only [φ].

In both cases of *wh*-agreement being triggered by a possessor that I have discussed, the possessor does not undergo movement from its base position. The morphological analysis offers a way of unifying these cases with instances of *wh*-agreement triggered by subjects and objects as discussed in chapter 2. The common thread is that the goal of the affected φ-probe bears an Ā-feature. When that φ-probe interacts with that goal, it will copy back both [φ] and [Ā], and impoverishment will be triggered in the morphological component, *whether or not the goal undergoes Ā-movement.*

Accounts of anti-/*wh*-agreement that tie it to actual Ā-movement of an agreeing DP, on the other hand, must propose some mechanism that is distinct from the mechanism that derives anti-agreement in the movement context to derive *wh*-agreement in the constructions discussed in this section. This is because there is no movement of the possessors that trigger *wh*-agreement in (292) and (299), above; if Ā-sensitive agreement is tied *directly* to Ā-movement of an agreement controller, possessor agreement in the above cases should not exhibit Ā-sensitivity effects. Thus, for movement based accounts, such as those grounded in anti-locality, feature strength, or Criterial Freezing, there would have to be some distinct reason that leads to a lack of agreement in the morphology in these contexts. Crucially, such a reason could not be tied to the Ā-movement of the possessor, since there is no such movement.

Indirect anti-/*wh*-agreement is not limited to Abaza. Similar facts as those just discussed are found in all of the other West Caucasian languages (Abkhaz (Hewitt 1979a,b); Adyghe (Caponigro and Polinsky 2015; Ershova 2017); Kabardian (Colarusso 1992); and Ubykh (Fenwick 2011).) In the Bantu language Abo, PRO triggers subject-verb agreement in control complements, and, when it is controlled by a Ā-operator, it optionally triggers anti-agreement on that verb (Burns 2013). Finally, in the Niger-Congo language Ibibio, *wh*-operators trigger anti-agreement on upwardly agreeing embedded complementizers (see Torrence and Duncan 2017 for several examples and Baier and Yuan 2017 for discussion). The theory of indirect anti-agreement presented for Abaza can account for these phenomena with the same mechanism of Ā-sensitive agreement followed by impoverishment. That these mechanisms also account for more widely found types of anti/*wh*-agreement means that this solution should be preferred to analyses that must posit separate mechanisms for anti-agreement and indirect anti-agreement.

4.3 Anti-agreement in different Ā-movement contexts

In the previous section, I demonstrated that there is no direct connection between Ā-movement and Ā-sensitive φ-agreement. The basis for this conclusion was the fact that in Tundra Nenets, *wh*-in-situ is capable of triggering anti-agreement and in Abaza, possessors trigger *wh*-agreement, even though they do not necessarily move from their base position in the constructions in which this takes place.

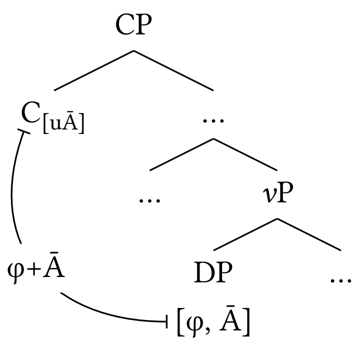
In this section, I reinforce the conclusion that there is no direct connection between Ā-movement and Ā-sensitive φ-agreement by examining Ā-movement that triggers anti-agreement in two languages, Dinka and the Austronesian language Selayarese (ISO: `sel`, Indonesia). The data from these languages show that there is no particular structural configuration associated with Ā-movement that triggers Ā-sensitivity effects.

In section 4.3.1, I return to Dinka and the observation originally made in chapter 3 that syntactically identical movement operations differ as to whether they trigger anti-agreement. Specifically, in Dinka topicalization, derived with the feature [TOP], does not trigger anti-agreement, while Ā-movement triggered by the feature [OP] does so. I then turn to the distribution of anti-agreement in the Austronesian language Selayarese in section 4.3.2. I show that Selayarese has a φ-probe on T that is capable of agreeing with either the internal or external argument, and that that φ-probe is targeted by φ-impoverishment in the context of [Ā]. Crucially, agreement with T is not parasitic on movement to a specific structural position. In fact, the hierarchical relationship between the external and internal arguments does not change in the different agreement contexts. This means that in Selayarese, the structural position of a DP that agrees with T is not relevant to whether or not that DP can trigger anti-agreement. What is important is T interacting with [φ] and [Ā] on the same goal DP.

4.3.1 Dinka

Recall from my discussion of the Dinka in chapter 3, section 3.4.1 that the language is V2 and movement to initial position, Spec-CP, is accompanied by φ-agreement on C (van Urk 2015; van Urk and Richards 2015). I follow van Urk (2015) in assuming that movement to Spec-CP is driven by an Ā-probe on C. The presence of φ-agreement on C follows from the theory of Agree assumed here—the Ā-probe on C interacts with both [φ] and [Ā] on the DP that it finds and copy back both sets of features. This is shown in (304).

(304) *Ā-probe on C copies [Ā] and [φ]*



Agreement on C is sensitive maximally to person and number and varies for tense (present vs. past). The declarative paradigm is found in with topicalization and is shown in tables 4.5 and 4.6 (van Urk 2015:103).

	SG	PL
1/2	Ø-	Ø-
3	à-	áa-

Table 4.5: Dinka declarative present

	SG	PL
1/2	é-	ḛ́-kè-
3	é-	áa-kè-

Table 4.6: Dinka declarative past

Examples of declarative agreement with 3rd person singular and 3rd person plural topics are shown in (305).

(305) *Topic in Spec-CP triggers φ-agreement*

a. Mìir à-càa ṱị̈iŋ
giraffe 3sg-aux.1sg see
'A giraffe, I have seen.' (van Urk 2015:103)

b. Mìɛ̈ɛr áa-càa ké ṱị̈iŋ
giraffes 3sg-aux.1sg 3pl see
'Giraffes, I have seen.' (van Urk 2015:103)

The interrogative paradigm, given in tables 4.7 and 4.8, is found on the C in yes/no interrogatives and when a non-topic Ā-operator moves to Spec-CP. The full paradigm is given in tables (van Urk 2015:104).

	sg	pl
1/2	Ø-	Ø-
3	Ø-	Ø-

Table 4.7: Dinka interrogative present

	sg	pl
1/2	ẹ̈́-	ẹ̈́-kè-
3	ẹ̈́-	ẹ̈́-kè-

Table 4.8: Dinka interrogative past

The key difference between the two paradigms is the lack of 3rd person *à-* and *áa-* in the interrogative forms. This means that all φ-contrasts are lost in the present tense—there is simply no overt agreement prefix. However, the exponent of plural in the past tense, *kè-*, is retained.

The interrogative paradigm occurs when the null operator found in relative clauses and (ex situ) *wh*-questions moves to Spec-CP. Examples of this effect in relative clauses are shown in (306).

(306) *Agreement with null operator in Spec-CP*

a. *Relative clause*
tíŋ$_i$ [$_{CP}$ Op$_i$ Ø-cị̈i Bôl —$_i$ ṱị̈iŋ]
woman pst.inter-aux Bol seen
'the woman that Bol has seen' (van Urk 2015:140)

b. Wh-*question*
Yè kɔ̂ɔc-kó$_i$ [$_{CP}$ Op$_i$ ẹ̈́-kè-thẹ̈t]?
be people-which.pl pst.inter-pl-cook
'Which people were cooking?' (van Urk 2015:104)

Crucially, the difference in agreement between (305) and (306) cannot be put down to a difference in the *syntactic* derivation, given the analysis of Dinka Ā-movement in (304). From a derivational point of view, there is nothing different between a clause with a topic in Spec-CP and a clause with a null operator in Spec-CP. In both, the Ā-probe on C initiates a search and triggers movement of a DP bearing the feature [Ā].

In chapter 3, I argued that the difference between these two patterns of agreement on C arises because of a difference in the behavior of φ-features in the presence of different Ā-features. Specifically, I argued that the lack of person agreement on C in the interrogative paradigm is an instance of partial impoverishment triggered by the Ā-feature [op], which subsumes the features [rel] and [wh], involved in relativization and *wh*-questions, respectively. On the other hand, the Ā-feature involved in topicalization, [top], does not trigger partial impoverishment. The impoverishment rule need is given in (307):

(307) *Dinka [person]-impoverishment*

$$\begin{bmatrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{P}} \end{bmatrix} \rightarrow [\ \varphi_{\text{N}}\ ]\ /\ [\_\_, \text{OP}, \text{C}]$$

Recall that I assume that the class of Ā-features is internally complex and that they are organized into the feature hierarchy in (308).

(308) *Ā-feature geometry (adapted from Aravind 2018:19)*

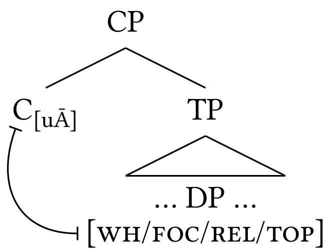
- [Ā]
  - [op]
    - [wh]
    - [foc]
    - [rel]
  - [top]

In this model, the feature [foc] entails higher-level features like [op] (a subclass of operator features) and [Ā]. I assume that Ā-probes may be relativized to different places on this hierarchy. That is, a probe may be satisfied by an Ā-feature (represented [uĀ]), or a feature lower down on the hierarchy, like [op] (represented [uop]).[13]

I adopt van Urk's (2015) proposal that matrix C in Dinka carries a flat Ā-probe ([uĀ]). This probe will interact and be satisfied by any goal bearing a feature that entails [Ā], that is, any feature in (308).

13. I assume that an XP that bears a feature [F] in (308) also bears all features that [F] entails. For example, if a DP bears [foc], then it will also have [op] and [Ā].

(309) *Flat Ā-probe satisfied by any Ā-feature*



Under van Urk's analysis, *wh*-questions, relativization, and topicalization involve the *same probe* on C triggering movement to Spec-CP—the only difference in the dependencies is the Ā-feature that the moving DP carries.

Crucially, this means that these different Ā-dependencies are *syntactically identical*, yet they differ in terms of agreement. This falls out from the impoverishment rule in (307), above, if we assume that [OP] or *any feature that entails it* triggers the rule. When the Ā-probe on C finds a DP bearing [TOP], it will copy back [TOP] and [φ] (as shown in 304). No φ-feature deletion takes place, because [TOP] does not trigger the impoverishment. On the other hand, when the Ā-probe on C finds a DP bearing [REL] or [WH], it will copy back that feature and [φ]. In the morphology, the presence of an [OP]-entailing feature on C will trigger φ-impoverishment, leading to partial anti-agreement.

A theory of anti-agreement that connects anti-agreement with Ā-movement directly cannot capture this difference without stipulating a *syntactic* difference between topicalization on the one hand and operator movement on the other. This obscures the structural parallels between these different dependencies, thereby losing the insights of van Urk's work on Dinka. On the other hand, the morphological theory captures the difference in a straightforward manner and relies only on elements of the theory that are independently motivated.

Further support for the account of anti-agreement in Dinka laid out above comes from the behavior of agreement in long distance Ā-dependencies. Just like local movement to matrix Spec-CP, in long distance Ā-dependencies, successive cyclic movement to intermediate Spec-CP is accompanied by φ-agreement (van Urk 2015; van Urk and Richards 2015). In cases of long distance *wh*-movement or relativization, the pattern of agreement is what one might expect—all intermediate C's exhibit anti-agreement, as shown in (310).

(310) *Long distance* wh-*question* → *anti-agreement on intermediate C*

Ye **kɔ̂ɔc-kó**$_i$ [$_{CP}$ Op$_i$ **é̤-kè**-yá ké tàak [$_{CP}$ t_i é̤-kè-cí̤i
be people-which OP PST-3PL-AUX.2SG 3PL think t PST-3PL-AUX
Áyèn ké gàam gàlàm]]
Ayen 3pl give pen
'Which people did (s)he think that Ayen had given a pen to?'
(van Urk 2015:19)

In (310), the null operator moves to the matrix Spec-CP via the embedded Spec-CP. Both Cs show interrogative inflection, meaning that impoverishment has targeted both C heads. This is expected based on the theory of anti-agreement in Dinka outlined above, as both C heads agree with the operator that moves, copying [OP], which triggers impoverishment.

From this perspective, the pattern of agreement in embedded clauses found in long distance topicalization is surprising. In such constructions, inflection on the intermediate C is not the expected declarative paradigm, but instead comes from the interrogative paradigm. To see this, consider (311).

(311) *Long distance topicalization* → *anti-agreement on intermediate C*

wɔ̂ɔk Ø-yí̤i Bôl ké luêeel [$_{CP}$ è̤ t_i $\boxed{\textbf{é̤-kè}}$-lɛ́ɛt Áyèn ké].
we 1/2-AUX Bol 3PL say C t PST-3PL-insult Ayen 3PL
'Us, Bol says Ayen was insulting' (van Urk 2015:135)

In (311), the first person plural pronoun *wɔ̂ɔk* is topicalized from an embedded clause to the matrix Spec-CP. Note that the agreement found on the embedded C differs from the matrix C. While the matrix C shows the declarative paradigm, the embedded C has the interrogative paradigm—there is no person agreement, special exponent of past tense surfaces, and number agreement persists. We are forced to conclude that [PERSON]-impoverishment has taken place at the embedded C, while it has not taken place at the matrix C. This is completely unexpected if impoverishment in Dinka is triggered by [OP] or a feature that entails [OP]. The feature involved in topicalization does not entail [OP]—this is crucial to the account of the asymmetry between topicalization and operator movement observed in matrix clauses.

I argue that we can understand the pattern of agreement in long distance topicalization in a way similar to that employed above to capture the asymmetry between [TOP] and [OP], above. Specifically, I propose that the impoverishment rule that targets embedded C heads is different than the impoverishment rule that targets matrix C in Dinka. This means that there are two φ-impoverishment rules in Dinka, shown in (312).[14]

(312) *Dinka [PERSON]-impoverishment*

a. *Matrix clause*

$$\begin{bmatrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{P}} \end{bmatrix} \rightarrow [\ \varphi_{\text{N}}\ ]\ /\ [\_\_, \textsc{op}, \text{C}_{\text{matrix}}]$$

b. *Embedded clause*

$$\begin{bmatrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{P}} \end{bmatrix} \rightarrow [\ \varphi_{\text{N}}\ ]\ /\ [\_\_, \bar{\text{A}}, \text{C}_{\text{embedded}}]$$

The rules in (312) differ in the heads that they target and the Ā-feature that triggers impoverishment. In matrix clauses, [OP] or a feature that entails [OP] triggers deletion. In embedded clauses, on the other hand, deletion is triggered by [Ā] *or a feature that entails [Ā].* Because [TOP] does not entail [OP], no impoverishment will take place in matrix clauses. On the other hand, because [TOP] *does* entail [Ā], long distance topicalization will trigger impoverishment.

This proposal captures the asymmetrical behavior of topicalization with regards to impoverishment without stipulating any additional mechanisms. The difference in behavior falls out from the impoverishment rules present in the language and the structure of the Ā-feature set given in (308).

If Ā-sensitive agreement is tied directly to Ā-movement, we would have to stipulate that movement to the matrix Spec-CP was heterogeneous, while movement to the embedded Spec-CP edge was not. On the other hand, the present account captures these differences in behavior while assuming a uniform syntax of movement to all Spec-CP position in Dinka. As such, it is a strong argument in favor of a feature-based approach to Ā-sensitive agreement effects in general.

4.3.2 Selayarese

Selayarese (ISO: `sly`) is an Austronesian language spoken in South Sulawesi, Indonesia. In this section, I examine agreement and anti-agreement in the language. Selayarese

14. Alternatively, it could be the case that is not the matrix vs. embedded distinction that matters but instead the distinction between the final position in a chain vs. medial positions in a chain. If the features that drive movement to the topmost Spec-CP differ in some way from the features that drive movement to intermediate Spec-CPs ('formal' vs. 'substantive' features in the terminology of Rizzi 2006; see also McCloskey 2002, (Georgi 2014)), then it could be the difference between these features that matters in (312). Note, however, that in van Urk's analysis of Dinka, we need to refer to a featural difference between the topmost and intermediate C projections—all Ā-movement in Dinka is driven by probing for a general feature [Ā]. There is no need for a distinction between 'formal' vs 'substantive' features. Thus, to frame the difference between (312a) and (312b) in those terms, we would have to complicate the feature analysis of Ā-movement in Dinka.

exhibits an ergative-absolutive agreement alignment, but only arguments that control absolutive agreement trigger anti-agreement. What we will see is that the launching site for Ā-movement of a DP does not determine whether or not that DP triggers anti-agreement. Rather, anti-agreement is determined by the identity of the φ-probe and that the moved DP has interacted with—anti-agreement will result if and only if the moved DP has interacted with the φ-probe on T, the head that hosts the absolutive φ-probe. I derive this by restricting the φ-impoverishment rule in Selayarese to applying to T. Thus, the head *v*, which hosts the φ-probe responsible for ergative agreement in transitive clauses, is not targeted for φ-impoverishment. I refer to this type of difference, in which the identity of the probe determines if anti-agreement obtains or not, as *probe-based variation*. This contrasts with the *feature-based variation* discussed for Dinka in the previous section.

4.3.2.1 Agreement and anti-agreement in Selayarese

The basic word order in Selayarese transitive clauses with two overt arguments is VOS, with a surface VSO alternative, though both subject and object may be dropped. Transitive verbs agree with their subject and definite direct object.[15] As shown in (313), subjects control an agreement prefix, while objects control an enclitic.[16]

(313) *Transitive verb, definite object*

a. *VOS word order*
la$_i$-'alle=i$_k$ doe'-iñjo$_k$ i Baso'$_i$
3ERG-take=3ABS money-DEF H Baso
'Baso took the money.' (Finer 1997:679)

b. *VSO word order*
la$_i$-'alle=i$_k$ i Baso$_i$' doe'-iñjo$_k$
3ERG-take=3ABS H Baso money-DEF
'Baso took the money.' (Finer 1997:679)

c. *Omitted subject*
ku$_i$-alle=i$_i$ doe'-iñjo$_k$ *pro*$_i$
1SG.ERG-take=3ABS money-DEF 1SG
'I took the money.' (Finer 1997:679)

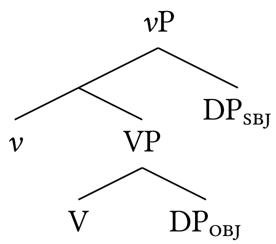
15. In notionally transitive clauses with indefinite direct objects, the pattern of agreement is different. See section 4.3.2.2 for discussion.

16. In Selayarese glosses, H is a particle that precedes [+HUMAN] nouns.

d. *Omitted object*
la$_i$-keo'=a$_k$ *pro*$_k$ i Baso'$_i$
3ERG-call=1SG.ABS 1SG H Baso
'Baso called me' (Finer 1997:679)

I assume that VOS word order is derived by a rightward specifier of *v*P in which the external argument is merged as shown in (314).

(314) *VOS results from a right Spec-vP*



This analysis of VOS word order departs from previous analyses of VOS in Selayarese which argue that the object shifts across the subject (Béjar 1999; Finer 1994, 1997, 1999). Such analyses thus place the object *above* the subject. As we will see below, this fact is challenged by the fact that extraction can lead to weak crossover, which is unexpected if the subject does not c-command the object when it is extracted.[17]

When the verb is intransitive, a different pattern of agreement occurs. The verb takes an invariant prefix that Finer (1997) refers to as the *intransitivizer* or *intransitive prefix* (glossed INTR here) and the agreement enclitic indexes the features of the subject, as shown in (315).

(315) *Agreement: intransitive*

a. ak-kelo'=i$_i$ i Baso'$_i$
INTR-sing-3 H Baso
'Baso sang' (Finer 1999:139)

b. ak-kelong=ko$_i$ *pro*$_i$
INTR-call-2FAM 2FAM
'You sang.' (Finer 1999:139)

Therefore, Selayarese has an ergative-absolutive agreement pattern—the clitic agreement markers cross reference intransitive subjects and (definite) direct objects, while the prefix

17. I do not take a position on how VSO word order is derived. What is crucial here is the relative configuration between the external argument and the internal argument.

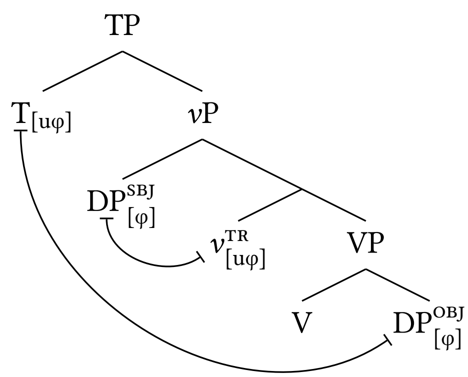
agreement markers index transitive subjects. I follow Béjar (1999) and Finer (1999) in referring to these different agreement series as absolutive agreement and ergative agreement, respectively. The two series are shown in table 4.9, below.

	1sg	2fam	2hon/1pl.inc	1pl.excl	3
ergative	*ku-*	*mu-*	*ri-*	*to-*	*la-*
absolutive	*=a*	*=ko*	*=ki*	*=kang*	*=i*

Table 4.9: Selayarese agreement morphemes (Finer 1997:679)

I follow Béjar (1999) and Finer (1997, 1999) and assume that ergative and absolutive agreement spell out distinct functional heads in the clausal spine: absolutive spells out a φ-probe on T which agrees with some DP in T's c-command domain.[18] Ergative agreement spells out a φ-probe on *v* that agrees with the external argument in Spec-vP.[19] In transitive clauses with a definite object, both probes are present, as shown in (316).[20]

(316) *Agreement in transitive clauses*



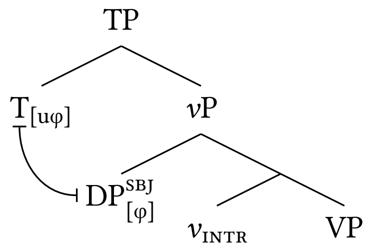
In intransitive clauses, I assume that there is no φ-probe on *v*, and that the φ-probe on T agrees with the subject. The *v* in these clauses is spelled out as the intransitive prefix. This is shown for unergatives in (317).

18. Further evidence supporting the analysis of a high position for absolutive agreement is the clitic's placement in clauses with other preverbal material, certain preverbal material is able to host the clitic. See Finer (1999) for details.

19. Following Coon (2017), I assume that this is inherent spec-head agreement tied to the thematic relationship between v_{TR} and the DP it introduces.

20. Although I assume that Spec-vP is linearized on the right, for the remainder of the section, I use left specifiers for ease of exposition.

(317) *Agreement in (unergative) intransitive clauses*



The sets of vocabulary items relevant for the analysis of agreement presented above are given in (318).[21]

(318) *Selayarese agreement VIs*

a. =a, =ko, =ki, =kang, =i ↔ [φ, Agr, T]

b. ku-, mu-, ri-, to-, la- ↔ [φ, Agr, v_{TR}]

c. (a)ng-/aʔ- ↔ [v_{INTR}]

The first set of VIs, schematized in (318a), is the set that spells out agreement on T. The set in (318b) spells out agreement on transitive *v*. The VI in (318c) spells out intransitive *v* (which lacks a φ-probe, as in 317).

Wh-phrases, focused phrases, and heads of relative clauses obligatorily front to the left of the verb in Selayarese. When an argument that would control absolutive agreement appears in this position, no absolutive clitic appears in the clause. This is the case regardless of the grammatical function of the fronted argument. Loss of absolutive agreement with extracted objects is shown in (319); loss of agreement with a relativized intransitive subject is shown in (320).

(319) *Extracted object*

a. *Focused object*

doe'-iñjo la-taro(*-**i**$_i$) i Baso' ri lamari
money-DEF 3ERG-put(-3ABS) H Baso' in cupboard
'Baso put THE MONEY in the cupboard.' (Finer 1997:688)

b. Wh-*object*

apa$_i$ la-taro(*-**i**$_i$) i Baso' ri lamari
what 3ERG-put(-3ABS) H Baso in cupboard
'What did Baso put in a cupboard?' (Finer 1997:689)

21. The VIs in (318) are not the fully specified VIs, but instead schematic representations of the VIs needed.

c. *Relativized object*[22]

palopi	to-mu-lajanjang(*=**i**)-iñjo
sailor	REL-2FAM.ERG-see(=3ABS)-DEF

'the sailor that you saw' (Finer 1998:291)

(320) *Relativized intransitive subject*[23]

tedoŋ	nu-ak-kelon(*=**i**)-na	ri	sapo
buffalo	REL-INTR-sing(=3ABS)-3POSS	in	house

'his buffalo that sang in a house' (Finer 1998:297)

Unlike absolutive agreement, ergative agreement is not lost under focus/*wh*-fronting, as shown in (321).

(321) *Extracted ergative subject*

a. *Focused ergative subject*

i Baso'$_i$	**la**$_i$-'alle=i	doe'-iñjo
H Baso	3ERG-take-3ABS	money-DEF

'BASO took the money.' (Finer 1997:688)

b. *Ergative* wh-*subject*

inai$_i$	**la**$_i$-erang=i	loka-ñjo
who	3-bring-3	banana-DEF

'Who brought the bananas?' (Finer 1997:689)

The expected ergative agreement is carried through to the Ā-context. There is thus an asymmetry in how relativization/focus/*wh*-fronting affects the two types of agreement in

22. Finer (1998) argues that relativization in Selayarese involves null operator movement to the same position that is targeted by focus and *wh*-movement. Thus, the structure of the example in (319c) is more accurately represented as in (i).

(i) *Selayarese: null operator movement in relative clause*

palopi	[$_{CP}$	Op$_i$	to-mu-lajanjang(*=**i**)-iñjo	—$_i$	]
sailor			REL-2FAM.ERG-see(=3ABS)-DEF		

'the sailor that you saw' (Finer 1998:291)

As seen in (i), definite relative clauses in Selayarese are marked by the definite suffix occurring on the verb inside the relative clause, instead of on the head noun. Finer (1998) argues that this is derived via head movement of the verb through C to the a D layer that selects the relative clause.

23. Like the definite suffix in (319c), possessive agreement suffixes *-na* in (320) is hosted by the verb and not by the head of the relative clause (*tedoŋ* 'buffalo'). Finer (1998) argues that the position of the possessive suffix is derived by head movement of the verb through C to the a D layer that selects the relative clause, as is the case for definite suffixes.

Selayarese: absolutive agreement is deleted in the Ā-context, while ergative agreement remains the same. I return to this asymmetry below.

Finer (1994, 1997) argues that the fronting involved in the examples above is derived via Ā-movement to a focus projection in the left periphery of the clause. Evidence for this comes from the fact that focus fronting of an object over a pronoun in subject position triggers Weak Crossover, as shown in (322).

(322) *Weak Crossover*

a. *Base sentence*

la-jañjang-i	i	Ali$_i$	ando'-na$_{i/j}$
3-see-3	H	Ali	mother-3POSS

'His$_{i/j}$ mom saw Ali$_i$.' (Finer 1997:695)

b. *Object focus*

i	Ali$_i$	la-jañjang(*-i)	$\_\__i$	ando'-na$_{*i/j}$
H	Ali	3-see(-3)		mother-3POSS

'His$_{*i/j}$ mom saw ALI$_{i\text{FOC}}$.' (Finer 1997:695)

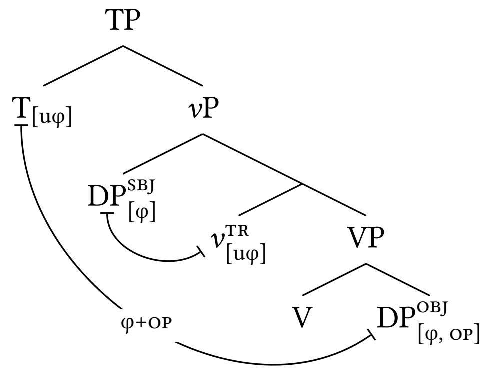
The sentence in (322a) shows both subject and object in situ with VOS word order. In this configuration, the possessor of *ando'* 'mother' is free to corefer with Ali, the object. When the object is focused in (322b), however, this possibility disappears; the possessive agreement on 'mother' can no longer refer to Ali, the focused object. This is an example of Weak Crossover (WCO).

The fact that focus movement of the object is capable of triggering (WCO) supports the analysis of VOS as arising from a rightward specifier, as opposed to movement of the object over the subject as in previous work (Béjar 1999; Finer 1994, 1997). If the object did in fact move across the subject in (322a) to derive VOS word order, we would not expect the change in coreference possibilities in (322b). This is because the object would be extracting from a position where it c-commands the subject, and not vice-versa.

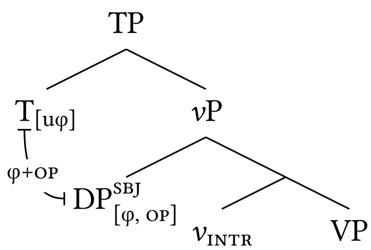
I follow Finer in assuming that relativization, focus, and *wh*-fronting are derived by movement to the left periphery of the clause. Here, I will assume that this movement is triggered by either a [FOC] or [WH] feature on the moved DP. I propose that loss of absolutive agreement with an Ā-moved DP results from Ā-sensitive agreement followed by φ-impoverishment triggered by [OP]. Thus, loss of absolutive agreement will occur when T agrees with a DP bearing both [φ] and an [OP], as shown in (323):

(323) *Configurations leading to loss of absolutive agreement*

a. *Object has [Ā]*



b. *Intransitive subject has [Ā]*



The structure in (323a) arises when an object is extracted, and the structure in (323b) arises when an intransitive subject is extracted. In both contexts, T will have the feature bundle in (324) in the morphology.

(324) *Feature bundle on T after Agree DP bearing [OP]*

[φ, OP, Agr, T]

Lack of absolutive agreement in these contexts arises because of the impoverishment rule in (325).

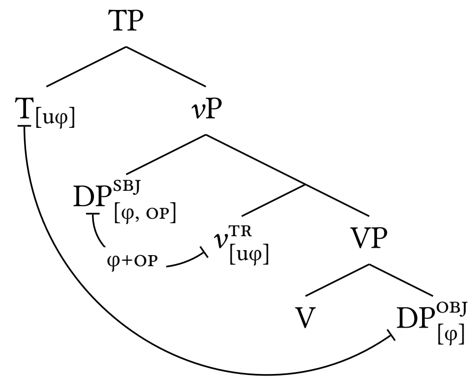
(325) *Selayarese φ-impoverishment*

[φ] → Ø / [__, OP, T]

The rule in (325) deletes all φ-features on T when T has an [OP] feature. This will occur when the T has agreed with a DP that bears a feature that entails [OP], such as [FOC], [WH], or [REL].

Given the Ā-Sensitivity Uniformity Hypothesis, both T and v_{TR} will copy back Ā-features from any goal they agree with that bears them. Thus, when an ergative agreeing subject undergoes OP-triggered movement, v_{TR} will copy back those features, as shown in (326).

(326) *Transitive subject has [Ā]*



However, recall that the ergative agreement prefix is not affected by Ā-movement of its controller (see example 321, above). The impoverishment rule in (325) targets T, and not just a head bearing an Agr feature. This derives the asymmetry between ergative agreement and absolutive agreement—absolutive agreement is impossible in the context of [OP], whereas ergative agreement is not overtly affected by it.

In the current analysis of Selayarese anti-agreement, full agreement takes place in the syntax for both extracted absolutives and extracted ergatives. This means that, the asymmetry in whether or not an extracted arguments triggers anti-agreement arises because of a *morphological* difference, not a syntactic one. Selayarese simply has no impoverishment rule that targets φ-features on v_{TR} in the presence of an Ā-feature. Absolutive agreement is affected because such an impoverishment rule exists that targets φ-features on T. Theoretically, this is captured by the fact that the Selayarese impoverishment rule refers to the categorial feature [T] in its contextual restriction, and not the general feature [Agr]. This type of probe-based asymmetry is the focus of the next chapter.

An important generalization over anti-agreement in Selayarese is that Ā-moved arguments may trigger anti-agreement *regardless of the position that movement launches from*. When a transitive object triggers anti-agreement, it moves from the complement of VP.[24] When an unergative subject triggers anti-agreement, it moves from Spec-vP. Yet, when a transitive subject moves from Spec-vP, it does *not* trigger anti-agreement, and full ergative agreement occurs. This state of affairs is schematized in (327).

24. At the very least, an object must move from below Spec-vP, as shown by WCO. Whether or not an object moves to a position between the complement of VP and the specifier of *v*P is not crucial to the analysis here.

(327) *Selayarese: probe-based asymmetry*

a. *Probe on T, internal argument ⟶ anti-agreement*

AGREE

$[_{\text{CP}}\ \text{DP}_{[\varphi,\ \text{OP}]}\ \text{C}\ [_{\text{TP}}\ \text{T}_{[\text{u}\varphi]}\ \dots\ [_{v\text{P}}\ \text{DP}\ v\ [_{\text{VP}}\ \dots\ \text{DP}_{[\varphi,\ \text{OP}]}\ \dots\ ]]]$

MOVEMENT

b. *Probe on T, external argument ⟶ anti-agreement*

AGREE

$[_{\text{CP}}\ \text{DP}_{[\varphi,\ \text{OP}]}\ \text{C}\ [_{\text{TP}}\ \text{T}_{[\text{u}\varphi]}\ \dots\ [_{v\text{P}}\ \text{DP}_{[\varphi,\ \text{OP}]}\ v\ \dots\ ]]]$

MOVEMENT

c. *Probe on v, external argument ⟶ full agreement*

AGREE

$[_{\text{CP}}\ \text{DP}_{[\varphi,\ \text{OP}]}\ \text{C}\ [_{\text{TP}}\ \text{T}\ \dots\ [_{v\text{P}}\ \text{DP}_{[\varphi,\ \text{OP}]}\ \text{v}_{[\text{u}\varphi]}\ \dots\ ]]]$

MOVEMENT

Thus, the crucial factor for determining whether or not an Ā-moved DP will trigger anti-agreement is not the launching position of that movement, but whether or not the DP has agreed with T. That is, only arguments that control absolutive agreement trigger anti-agreement, regardless of where they move from.

This rules out an analysis of Selayarese anti-agreement in terms of the structural configuration between the extracted argument and the landing site, as in anti-locality accounts of the phenomenon (Cheng 2006; Erlewine 2016; Schneider-Zioga 2007). Furthermore, because it is clear that arguments do not have to move to a specific structural position to control absolutive agreement, an analysis of anti-agreement in terms of constraints on movement from a specific position, such as Criterial Freezing (Diercks 2010; Henderson 2013; Shlonsky 2014), ruled out as well.

This analysis of anti-agreement in Selayarese receives further support from the patterns of agreement in transitive clauses with indefinite objects. This is the topic of the next section.

4.3.2.2 Transitive clauses with indefinite objects

All examples of transitive clauses in the previous discussion involved contexts where the direct object was definite. As shown again in (328), in those clauses the absolutive clitic agrees with the object and there is an ergative agreement prefix that agrees with the subject.

(328) *Transitive verb, definite object*

la_i-'alle=i_k	doe'-iñjo_k	i	Baso'_i
3ERG-take=3ABS	money-DEF	H	Baso

'Baso took the money.' (Finer 1997:679)

A different pattern of agreement occurs when the direct object is indefinite. In such examples, the verb takes the intransitive prefix and the clitic agrees with the subject, as shown in (329).

(329) *Transitive verb, indefinite object*

a.

(a)ng-alle=i_i	doe'	i	Baso'_i
INTR-take-3ABS	money	H	Baso

'Baso took (some) money.' (Finer 1997:680)

b.

(a)ng-alle=kang_i	doe'	$\textit{pro}_i$
INTR-take-1PL	money	1PL

'We took (some) money.' (Finer 1997:680)

I take the ability of some objects to control absolutive agreement to be a form of differential object marking (DOM; Comrie 1978, Croft 1988). Following Kalin (to appear), I take the appearance of marking for some objects and not for others to following from nominal licensing requirements. I assume that only nominals with a certain structure require licensing in Selayarese; specifically, DPs must be licensed while NPs have no obligatory licensing requirement. Following Béjar (1999), I take indefinite nominals in Selayarese to not project a DP; syntactically, indefinite nominals are NPs. Thus, they will not need to be licensed via Agree with a functional head.[25]

In Selayarese, I assume that DPs are licensed under Agree with a functional head. Given this assumption, the different agreement patterns in clauses with definite and indefinite objects arise because of differences in the licensing requirements of nominals in the clause. Following Kalin (to appear), I assume that there is always one φ-probe merged, namely on T. This means that will always be one instance of agreement, regardless of the licensing requirements in a clause, while further licensing requirements will trigger the merger of additional φ-probes. In intransitive clauses and transitive clauses with an indefinite object, only the probe on T is required. However, in transitive clauses with definite objects, where the object projects to DP, an additional φ-probe must be merged, namely,

25. The exact mechanism that captures the split between indefinite and definite nominals is not crucial to the analysis here. What is important is that the internal object does not shift above the subject.

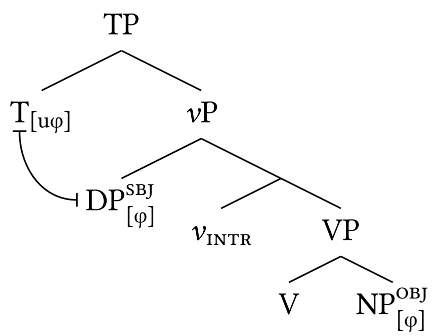
the ergative agreement probe on transitive *v*. The φ-probe on *v* agrees with the nominal in Spec-vP before T is merged, rendering it invisible to further probing from T, and allowing T to agree with the direct object. These configurations are summarized in table 4.10.

		v_{TR} merged?	T agrees with
	Intransitive	no	subject
Transitive	Indefinite O	no	subject
	Definite O	yes	object

Table 4.10: Selayarese agreement alternations

Like in clauses with intransitive verbs, there is no φ-probe on *v* in clauses with an indefinite object, and the absolutive φ-probe on T agrees with the subject, instead of with the object, as shown in (330).

(330) *Agreement in clauses with an indefinite object*



The outcome of the structure in (330) will be an intransitive prefix on the verb (the spell out of v_{INTR}) and absolutive agreement which tracks the subject of a transitive clause.

The analysis above is very similar to the account of the same phenomenon in Béjar (1999). For Béjar, like me, the need for two agreement projections is driven by the need for two nominals to be licensed. For Béjar as well, NPs do not require licensing, while DPs do. However, the accounts diverge in how the clausal syntax responds to these varying needs. For Béjar, intransitive clauses lack a *v*P projection altogether—*v* is only merged if the object requires licensing. For me, *v*P is always merged—the difference is the presence or absence of a φ-probe on *v*.

Given the structure in (330), we expect Ā-movement of the external argument of a transitive verb with an indefinite object to trigger anti-agreement on T. This is indeed the case, as is shown in (331).

(331) *Extracted absolutive subject with indefinite object*

a. *Focus*

i Baso'$_i$ (a)ng-alle(*=**i**$_i$) doe'
H Baso INTR-take(-3ABS) money
'BASO took (some) money.' (Finer 1997:689)

b. Wh-*question*

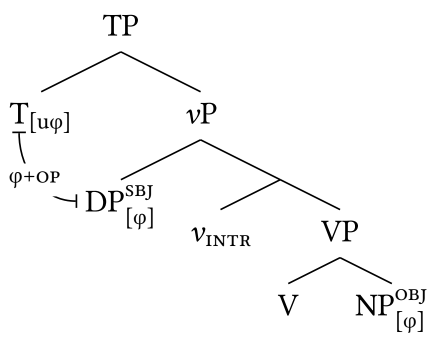
inai$_i$ ng-erang(*=**i**$_i$) loka
who INTR-bring(-3ABS) banana
'Who brought (some) bananas?' (Finer 1997:689)

c. *Relative clause*

asu nu-ang-okkoʔ(*=**i**) meong
dog REL-INTR-bite(=3ABS) cat
'a dog that bit a cat' (Finer 1998:291)

Anti-agreement in (331) is the result of Agree for [φ] and [OP] between T and the external argument, as shown in (332).

(332) *Anti-agreement in clauses with indefinite object*



In (332), the φ-probe on T agrees with the DP in Spec-vP, copying back the φ-feature and the OP-feature that is born by that element. This leads to impoverishment in the morphology, blocking insertion of an appropriate absolutive agreement clitic. This provides further evidence for the conclusion that the crucial factor in determining whether or not a DP triggers anti-agreement in Selayarese or not is whether or not that DP has agreed with T.

Extraction of indefinite direct objects provides further evidence for the current analysis of anti-agreement in Selayarese. When an indefinite object is Ā-moved, the pattern of agreement in which the external argument controls agreement on T is impossible. Instead, there is no absolutive clitic on the verb and the external argument controls *ergative* agreement, as shown for indefinite object focus in (333a). The verb *cannot* appear with the intransitive prefix and absolutive agreement targeting the external argument, as shown in (333b).

(333) *Focused indefinite object*

a. *Focused indefinite object*

doe'	la-alle	i	Baso'
money	3ERG-take(-3ABS)	H	Baso'

'Baso took (some) MONEY .' (Béjar 1999:59)

b. *Focused indefinite object*

* **doe'**$_i$	(a)ng-alle=**i**$_i$	i	Baso'
money-DEF	INTR-take-3ABS	H	Baso'

Intended: 'Baso took (some) MONEY .' (Béjar 1999:59)

c. *Baseline clause, no extraction*

(a)ng-alle=i$_i$	doe'	i	Baso'$_i$
INTR-take-3ABS	money	H	Baso

'Baso took (some) money.' (Finer 1997:680)

Comparing the agreement pattern in the baseline clause in (333c) to the agreement pattern in the grammatical example with extraction, (333a), we see that there is indeed a shift in how many agreement probes are present in the clause. Namely, an ergative agreement probe on v_{TR} is present when the object is extracted. Lack of such a probe in (333b) leads to ungrammaticality.

Crucially, lack of absolutive agreement in (333a) cannot be analyzed as the internal argument failing to agree with T in the syntax. We know what this state of affairs looks like—lack of ergative agreement, with absolutive agreement on T tracking the external argument. Thus, we are forced to conclude that the indefinite internal argument has in fact agreed with T exceptionally. Following Béjar (1999), I assume that nominals must project to at least DP when they are extracted, even if they are indefinite. Thus, an indefinite object will need to be licensed if it is to be extracted. The ergative agreement pattern will surface in such cases, and the object will be licensed by T via agreement.

The fact that absolutive agreement with an extracted indefinite object does not appear on the surface follows from the analysis of Selayarese presented here. In the syntax, the object will agree with T because of its licensing requirement, and T will copy back both [φ] and [Ā]. In the morphology, this combination of features will trigger impoverishment, and no absolutive agreement clitic will be spelled out.

In the next section, I discuss what the case studies of Selayarese and Dinka tell us regarding the relationship between movement and Ā-sensitivity effects when taken together.

4.3.3 What we learn from Selayarese and Dinka

There are two important takeaways from the Dinka and Selayarese data discussed in the preceding sections. The first is that neither the landing site nor the launching site of Ā-movement plays a role in determining whether Ā-movement of an argument will trigger an Ā-sensitivity effect. In Dinka, both topicalization and operator movement (focus, *wh*-movement, and relativization) target the same position, Spec-CP, and they reach that position via movement (van Urk 2015). Yet, these dependencies behave differently with regards to φ-agreement on (matrix) C: topicalization requires full agreement, whereas operator movement triggers partial anti-agreement. Thus, nothing about the landing site of these different dependencies determines whether or not full φ-agreement obtains.

In Selayarese, we see that the launching site of an Ā-dependency does not determine the ability of that dependency to trigger anti-agreement. There are two ways the language demonstrates this. First, the extraction of the external argument triggers anti-agreement on T but not on *v*. Yet in both cases, the simplest analysis is that this argument moves from Spec-vP. Second, arguments that move from different positions trigger anti-agreement on T—both internal and external arguments are capable of doing so when they have agreed with that head. As argued above, there is no reason to believe that arguments that agree with T move to a specific structural position in Selayarese. We must therefore conclude that the position from which an Ā-dependency launches plays no role in the ability of that dependency to trigger φ-impoverishment.

The second takeaway from Dinka and Selayarese is that there are two crucial factors determining the distribution of anti-agreement in a given language. First, a particular Ā-feature may trigger φ-impoverishment while another may not. This is the case in Dinka, where different Ā-dependencies with *identical* syntactic derivations behave asymmetrically: topicalization does not trigger anti-agreement, whereas operator movement does. This difference is schematized in (334).

(334) *Dinka: Ā-feature-based variation*

a. *Goal has [OP] → anti-agreement*

AGREE

$[_{\text{CP}}\ \text{DP}_{[\varphi,\ \text{OP}]}\ \ \text{C}_{[\text{u}\bar{\text{A}}]}\ \ [_{\text{TP}}\ \dots\ \text{DP}_{[\varphi,\ \text{OP}]}\ \dots\ ]]$

MOVEMENT

b. *Goal has [TOP] → full agreement*

AGREE

$[_{\text{CP}}\ \text{DP}_{[\varphi,\ \text{TOP}]}\ \ \text{C}_{[\text{u}\bar{\text{A}}]}\ \ [_{\text{TP}}\ \dots\ \text{DP}_{[\varphi,\ \text{TOP}]}\ \dots\ ]]$

MOVEMENT

I will refer to this type of variation as *Ā-feature-based variation.*

Second, a particular head with a φ-probe may be targeted for φ-impoverishment in the presence of a certain Ā-feature, while another (categorically distinct) head that bears a φ-probe may not be so targeted in the presence of the same feature. This is the case in Selayarese, where [OP] driven movement of the external argument may trigger anti-agreement depending on which probe targets it. This is schematized in (335).

(335) *Selayarese: probe-based variation*

a. *Probe on T ⟶ anti-agreement*

AGREE

$$[_{CP}\ DP_{[\varphi,\ OP]}\ C\ [_{TP}\ T_{[u\varphi]}\ \ldots\ [_{vP}\ DP_{[\varphi,\ OP]}\ v\ \ldots\ ]]]$$

MOVEMENT

b. *Probe on v ⟶ full agreement*

AGREE

$$[_{CP}\ DP_{[\varphi,\ OP]}\ C\ [_{TP}\ T\ \ldots\ [_{vP}\ DP_{[\varphi,\ OP]}\ v_{[u\varphi]}\ \ldots\ ]]]$$

MOVEMENT

When the external argument agrees with T, as in (335a), the head responsible for absolutive agreement, the expected agreement morpheme does not occur. On the other hand, when the external argument agrees with transitive *v*, as in (335b), full, expected agreement surfaces. As argued above, this difference results from the existence of a φ-impoverishment rule that targets T in Selayarese, but no such rule that targets *v*. I refer to this type of variation as *probe-based variation.*

4.4 Summary

In this chapter, I have examined the relationship between Ā-movement and anti-/*wh*-agreement. First, in section 4.2, I showed that there are cases of anti-/*wh*-agreement triggered by DPs which do not undergo Ā-movement but nonetheless bear Ā-features. The existence of such cases is predicted on the featural view of anti-agreement argued for in this dissertation, but poses a serious challenge for syntactic accounts of anti-agreement reliant on particular constraints on movement.

I then turned in section 4.3 to the relationship between anti-agreement and movement in languages where they do coincide. Focusing on Dinka and Selayarese, I showed that neither the landing site nor the launching site of Ā-movement play a role in determining whether Ā-movement of an argument will trigger an Ā-sensitivity effect. Instead, there are two crucial factors determining the distribution of anti-agreement in a given language. First, a particular Ā-feature may trigger φ-impoverishment while another may not. I refer to this as *feature-based variation*. Second, a particular head with a φ-probe may be targeted for φ-impoverishment in the presence of a certain Ā-feature, while another (categorically distinct) head that bears a φ-probe may not be so targeted in the presence of the same feature. I refer to this as *probe-based variation*. Both types of variation, feature-based and probe-based, are situated squarely in the morphology—they pertain to the application of φ-impoverishment rules to a given morphological representation.

In the next chapter, I explore probe-based variation further. Focusing on languages in which transitive clauses contain multiple φ-probes, I show that there is no systematic crosslinguistic asymmetry in which probes are targeted for φ-feature impoverishment. Further, I show that when multiple probes can target the same argument in the same derivation, they need not behave uniformly with regards to impoverishment. This suggests that the differences in which probes are targeted for anti-agreement in which languages are 'superficial', in the sense that they do not result from syntactic differences. Instead, they result different types of impoverishment rules being active in different languages.

Chapter 5

Probe-based variation in the distribution of anti-agreement

5.1 Introduction

In the previous chapter, I demonstrated that the categorial identity of a head is relevant to determining whether φ-impoverishment will target it when it has both [φ] and [Ā]. This is the case in Selayarese, where T is targeted for φ-impoverishment in Ā-contexts but *v* is never so targeted. It is also the case in Dinka, where matrix C is targeted by one impoverishment rule, while embedded C is targeted by a different rule. The ability for categorial identity of a head to restrict the application of impoverishment rule allows us to account for asymmetries like those in Selayarese and Dinka, while maintaining the Ā-sensitivity uniformity hypothesis, shown again in (336).

(336) *The Ā-Sensitivity Uniformity Hypothesis (ASUH)*
All φ-probes are Ā-sensitive—they interact with Ā-features on their goal(s). There is no crosslinguistic variation in this property.

The ASUH holds that syntactic agreement is uniform—φ-probes always copy back both [φ] and [Ā] from their goals; what varies is whether there is an impoverishment rule that targets the head that bears the φ-probe in question.

Recall that I have assumed that all heads bearing a φ-probe carry an Agr-feature in addition to their categorial feature. The morphological representation of a head of category H with a φ-probe that has agreed with an Ā-marked goal is given in (337), where [φ] stands for the φ-feature structure copied from the goal of H's probe:

(337) *Feature bundle on head of category H*
[φ, Ā, Agr, H]

Given this representation, both [Agr] and the category feature [H] should be able to act as a contextual restriction on morphological rules applying to the head in (337). That is, the impoverishment rules in (338) should both affect the feature bundle in (337).[1]

(338) *Impoverishment rules that target (337)*

a. [φ] → Ø / [__, Ā, Agr]

b. [φ] → Ø / [__, Ā, H]

Both rules in (338) target the head in (337). However, their behavior diverges when one considers agreement heads of categories other than H. While the rule in (338a) will target *any* head bearing [φ], [Ā], and [Agr], the rule in (338b) will target only heads of category H. Consider the second hypothetical head in (339).

(339) *Feature bundle on head of category G*

[φ, Ā, Agr, G]

This head will be affected by impoverishment rule (338a): it bears an Agr-feature and that is part of the conditioning environment of that particular rule. It will be unaffected by impoverishment rule (338b), however: its categorial feature ([G]) does not match the contextual restriction of that rule (which includes the categorial feature [H]).

I have discussed languages that employ both types of impoverishment rules. Consider the difference between Selayarese, a language in which a single head is affected by anti-agreement, and Abaza, a language in which all heads bearing φ-probes are affected. The impoverishment rules for the two languages are repeated in (340).

(340) *Abaza and Selayarese φ-impoverishment*

a. *Abaza*

[φ] → Ø / [__, Ā, Agr]

b. *Selayarese*

[φ] → Ø / [__, Ā, T]

That the φ-impoverishment rule in Selayarese is restricted to targeting T heads derives the fact that anti-agreement affects only absolutive agreement. On the other hand, Abaza's rule targets all heads with [Agr] (that is, all heads with a φ-probe). This derives the fact that all agreeing heads are affected by anti-agreement in Abaza. The rules in (340) capture the difference between Selayarese and Abaza without having to posit multiple rules for

1. As I did in the previous chapter, in this chapter, I use [φ] in impoverishment rules as a shorthand for total φ-impoverishment. Partial impoverishment rules use fully articulated φ-sets.

Abaza. Both rules in (340) apply to heads with a specific property; in Selayarese, the relevant property is simply more restricted.

For languages with a single φ-probe on their clausal spine, which exhibits an Ā-sensitivity effect, the choice between a rule referring to [Ā, Agr] and [Ā, H] is somewhat arbitrary. Such languages give us no obvious way of diagnosing which rule should be preferred. However, for languages that (potentially) have multiple φ-probes in a given clause, we must determine if all heads bearing those φ-probes are targeted for impoverishment or only a subset of those heads are.

The theory of variation outlined in the paragraphs above makes a significant prediction regarding the distribution of anti-agreement in languages with multiple φ-probes. Specifically, we should see languages where all φ-probe bearing heads are affected (such as Abaza), and languages where only a subset of φ-probes are affected (Selayarese), but in the latter group there should not be systematic crosslinguistic asymmetries in which categorial features are affected by anti-agreement. This is because nothing about the theory as it stands above restricts which categorial features should be capable of serving as the trigger of an impoverishment rule.

In this chapter, I show that this prediction is confirmed by the All φ-probes generalization, repeated in (341).

(341) *All φ-probes generalization*
Crosslinguistically, any XP that triggers φ-agreement is in principle be capable of triggering anti-agreement on any φ-probe that it interacts with.

I explore this generalization by focusing on languages in which clauses may contain multiple φ-probes. I examine two types of cases. First, in section 5.2, I examine the distribution of anti-agreement in languages where there are multiple φ-probes in a clause and these φ-probes always (or sometimes) target different arguments. I show that there is no systematic asymmetry in which heads are targeted for anti-agreement in such languages. In section 5.3, I discuss languages in which there are multiple φ-probes in a clause and those φ-probes target the same argument. Again, we see that there is no systematic gap in the distribution of which heads are targeted for impoverishment in these languages.

5.2 Multiple probes that interact with different arguments

The morphological theory of anti-agreement developed in this dissertation predicts that variation in which instances of agreement in a clause are affected by anti-agreement should reduce to which probes are targeted by φ-impoverishment. As discussed above, that question reduces to the types of contextual restrictions that impoverishment rules have in any given language. An impoverishment rule whose contextual restriction contains [Agr] should apply to all instances of agreement, whereas a rule that has a contextual restriction referring to a specific categorial feature such as [T] should only apply to heads with that feature, and no others. I showed briefly above how this system of variation derives the difference between Abaza and Selayarese. In this section, I explore this topic in more detail.

Before looking at specific data from languages in the typological survey, consider the abstract scenarios in (342). All three involve the same basic structure: a clause that includes two φ-probes, each hosted on a head of a distinct category, and each of which targets a distinct DP in the structure. Setting aside the possibility of derivations in which multiple DPs host Ā-features, the three scenarios in (342) exhaust the possibilities of cases where zero or one of the DPs targeted for agreement have an Ā-feature.[2]

(342) *Possibilities for Ā-sensitive agreement with two probe-goal pairs*

a. *Scenario 1: Neither DP has [Ā], X and Y copy [φ]*

$$[\ \dots\ \underbrace{X_{[u\varphi]}\ \dots\ DP^{1}_{[\varphi]}}_{\varphi}\ \dots\ [\ \dots\ \underbrace{Y_{[u\varphi]}\ \dots\ DP^{2}_{[\varphi]}}_{\varphi}\ \dots\ ]]$$

b. *Scenario 2: DP_1 has [Ā], X copies [φ, Ā]*

$$[\ \dots\ \underbrace{X_{[u\varphi]}\ \dots\ \mathbf{DP^{1}_{[\varphi,\,\bar{A}]}}}_{\varphi+\bar{A}}\ \dots\ [\ \dots\ \underbrace{Y_{[u\varphi]}\ \dots\ DP^{2}_{[\varphi]}}_{\varphi}\ \dots\ ]]$$

c. *Scenario 3: DP_2 has [Ā], Y copies [φ, Ā]*

$$[\ \dots\ \underbrace{X_{[u\varphi]}\ \dots\ DP^{1}_{[\varphi]}}_{\varphi}\ \dots\ [\ \dots\ \underbrace{Y_{[u\varphi]}\ \dots\ \mathbf{DP^{2}_{[\varphi,\,\bar{A}]}}}_{\varphi+\bar{A}}\ \dots\ ]]$$

In all three scenarios, the φ-probe on X agrees with DP_1 and the φ-probe on Y agrees with DP_2. In scenario 1, (342a), neither DP has an Ā-feature. This is the control scenario against which one would test for the presence of an Ā-sensitivity effect in the other configurations. In scenario 2, (342b), DP_1 has an Ā-feature, and therefore the probe on head X copies back both [φ] and [Ā]. Finally, in scenario 3, (342c), DP_2 has an Ā-feature, and therefore the probe on head X copies back both [φ] and [Ā].

The question is which of these scenarios display an Ā-sensitivity effect. There are three possible outcomes. First, if both scenario 2 and 3 display such an effect, then the

2. In (342), the relations between probes and goals each in their own right are key, and not the relationships between the two dependencies. That is, I take these diagrams to represent cases where the two dependencies occupy separate portions of structure, as depicted here, as well as cases where they nest, as will be seen below.

simplest analysis is to posit an impoverishment rule that targets heads bearing [Agr]. Second, if only scenario 2 displays an effect, then the impoverishment rule targets heads of category [X]. Finally, if only scenario 3 exhibits an effect, then the relevant impoverishment rule targets heads of category [Y]. These outcomes and the needed impoverishment rules are summarized in table 5.1.

	Ā-sensitivity effect		
	Scenario 2 (X)	Scenario 3 (Y)	Rule
Outcome 1	✓	✓	[φ] → Ø / [__, Ā, Agr]
Outcome 2	✓	✗	[φ] → Ø / [__, Ā, X]
Outcome 3	✗	✓	[φ] → Ø / [__, Ā, Y]

Table 5.1: Possible outcomes for scenarios 2 and 3 in (343)

The languages I explore in the rest of the section conform to the paradigm of outcomes just laid out. Each language I examine displays agreement with at least subject and object in transitive clauses, which I take to instantiate the basic structural configuration in (342)—there are two φ-probes, and each of those probes targets one of the arguments.

To show that there are no typological gaps in which instances of agreement can be affected by anti-agreement, I approach this question from the perspective of agreement alignment. I consider languages with ergative-absolutive agreement alignment and languages with nominative-accusative agreement alignment. Here, I take a pretheoretical view of these terms in line with the work of Dixon (1994). I analyze a language as having ergative-absolutive agreement alignment when the same type of agreement indexes the single argument of an intransitive predicate and the object of an transitive verb and a second type of agreement indexes a transitive subject. I analyze a language as having nominative-accusative agreement alignment when the same type of agreement indexes transitive and intransitive subjects, and a distinct pattern of agreement indexes transitive objects.

In terms of the abstract configurations introduced above, ergative-absolutive and nominative-accusative agreement patterns emerge based on the way that probes X and Y pattern with regards to the arguments of transitive and intransitive clauses. For example, a language will have surface nominative-accusative agreement if probe X agrees with transitive and intransitive subjects, and probe Y agrees with transitive objects, or vice versa. An ergative-absolutive agreement pattern emerges in the opposite configuration, where X agrees with intransitive subjects and transitive objects, and Y agrees with transitive subjects, or vice versa.

This view of agreement alignment in summarized in table 5.2. In the table, I use the letters A, S and O to abbreviate the three relevant grammatical roles: A is the most agent-like argument of a transitive verb; O the most patient like argument of a transitive verb; and S is the lone argument of an intransitive verb.

	Argument		
	A	S	O
Nominative-accusative	X	X	Y
Ergative-absolutive	X	Y	Y

Table 5.2: Alignment with two probes

In the table, X and Y represent the heads hosting the φ-probes responsible for agreement, as in the configurations in (342), above. What is important in table 5.2 is not which head is assigned to which grammatical role, but rather the relative patterning of those heads and the fact that they have distinct categories. That is, the category of head X cannot be the same as the category of head Y.

Structures that produce the agreement alignments in table 5.2 are given in (343). I have assumed that X in table 5.2 represents the head T and Y represents the head *v*, though this is not strictly necessary. All that is required is a structural configuration that produces the Agree relations in 5.2.

(343) *Possibilities for Ā-sensitive agreement with two probe-goal pairs*

a. *Intransitive clause*

$$[_{\mathrm{TP}}\ \mathrm{T}_{[\mathrm{u}\varphi]}\ [_{v\mathrm{P}}\ \mathrm{DP}^{\mathrm{S}}_{[\varphi]}\ v\ [_{\mathrm{VP}}\ \dots\ \mathrm{V}\ \dots\ ]]]$$

φ

b. *Transitive clause, nominative-accusative alignment*

$$[_{\mathrm{TP}}\ \mathrm{T}_{[\mathrm{u}\varphi]}\ [_{v\mathrm{P}}\ \mathrm{DP}^{\mathrm{A}}_{[\varphi]}\ \mathrm{v}_{[\mathrm{u}\varphi]}\ [_{\mathrm{VP}}\ \mathrm{V}\ \mathrm{DP}^{\mathrm{O}}_{[\varphi]}\ ]]]$$

φ φ

c. *Transitive clause, ergative-absolutive alignment*

$$[_{\mathrm{TP}}\ \mathrm{T}_{[\mathrm{u}\varphi]}\ [_{v\mathrm{P}}\ \mathrm{DP}^{\mathrm{A}}_{[\varphi]}\ \mathrm{v}_{[\mathrm{u}\varphi]}\ [_{\mathrm{VP}}\ \mathrm{V}\ \mathrm{DP}^{\mathrm{O}}_{[\varphi]}\ ]]]$$

φ

φ

In (343a), which represents agreement in an intransitive clause, the situation is the same for languages with ergative-absolutive agreement and for languages with nominative-accusative agreement; the single φ-probe in the clause, located on T, agrees with the single

DP.[3] The scenarios in (343b) and (343c) represent agreement in transitive clauses in languages with nominative-accusative agreement and in languages with ergative-absolutive agreement, respectively. In nominative-accusative structure, (343b), the φ-probe on T agrees with the external argument, while the φ-probe on *v* agrees with the internal argument. In ergative-absolutive structure, (343c), the φ-probe on T agrees with the internal argument, while the φ-probe on *v* agrees with the external argument.

There are three possible distributions of anti-agreement for each alignment type, mapping to three possible outcomes in table 5.1. For nominative-accusative agreement alignment, we expect to find languages where both subjects and objects are capable of triggering anti-agreement (both X and Y are targeted for impoverishment). We also expect to find languages where only subjects are capable of triggering anti-agreement (only X is targeted for impoverishment) and languages where only objects are possible anti-agreement triggers (only Y is targeted for impoverishment). For ergative-absolutive agreement alignment, we expect to find languages where both ergative arguments and absolutive arguments are capable of triggering anti-agreement (both X and Y are targeted for impoverishment). We also expect to find languages only ergative arguments are capable of triggering anti-agreement (only X is targeted for impoverishment) and languages where only absolutive arguments are capable of triggering anti-agreement (only Y is targeted for impoverishment).[4]

These possible distributions are given in table 5.3. Checkmarks indicate that the argument in question triggers anti-agreement when it has an Ā-feature, whereas an X mark indicate that it does not trigger anti-agreement, even when it has an Ā-feature. Shading in the table is a visual aide. In what follows, we will see that each predicted type of language in table 5.3 is attested in the typological survey.

5.2.1 Distribution of anti-agreement in ergative-absolutive languages

I begin with a discussion of the distribution of anti-agreement in languages with an ergative-absolutive agreement alignment. We expect to find languages with absolutive only anti-agreement, just ergative anti-agreement, and both ergative and absolutive anti-agreement.

I have already briefly discussed Abaza and Selayarese in the introduction to this section. Abaza is an example of an ergative-absolutive language in which both probes responsible for agreement in transitive clauses are affected by anti-agreement. This is shown in (344) on the next page.

3. In (343a), that argument is located in Spec-vP—it is an unergative subject. The outcome would hold for unaccusative subjects located in a lower position.

4. That either or both core arguments may trigger special Ā-morphology, regardless of morphological alignment, has been previously observed by (Deal 2016c).

	Target probe(s)	Anti-agreement?			Language
		A	S	O	
Nom-Acc	X+Y	✓	✓	✓	Zulu
	X	✓	✓	✗	Palauan
	Y	✗	✗	✓	Ndebele
Erg-Abs	X+Y	✓	✓	✓	Abaza
	X	✓	✗	✗	Kaqchikel
	Y	✗	✓	✓	Selayarese

Table 5.3: Possible distributions of anti-agreement

(344) *Uniform anti-agreement in Abaza*

a. *Absolutive anti-agreement*
Izmir *pro* **dzač'ʷəya** **yə**-r-bakʷaz
Izmir 3PL who ABS.WH-3PL-see.PL.PST
'Who did they see in Izmir?' (O'Herin 2002:252)

b. *Ergative anti-agreement*
dəzda s-axčʲa **zə**-ɣəčʲ
who 1SG-money ERG.WH-steal
'Who stole my money?' (O'Herin 2002:252)

Example (344a) shows absolutive anti-agreement triggered by an object *wh*-question, and example (344b) gives an example of ergative anti-agreement triggered by a transitive subject *wh*-question. Recall from chapter 2 that I analyze absolutive agreement as realizing a φ-probe on T and ergative agreement as realizing a φ-probe on the head *v*.

As I argued above, Abaza has a single φ-impoverishment rule, repeated in (345).

(345) *Abaza φ-impoverishment*
[φ] → Ø / [__, Ā, Agr]

This rule targets any head bearing the feature [Agr] in addition to the feature [Ā]. Therefore, it will target both T and *v*, deriving the uniformity of anti-agreement in (344). Additionally, this rule applies to *any* other head that hosts φ-probe in Abaza, such as the possessive D. As discussed in section 4.2.2 above, possessor agreement is also affected by anti-agreement. This is shown in (346), below.

(346) *Anti-agreement with possessor relative operator in Abaza*

[$_{CP}$	[$_{DP}$	*Op$_i$*	**z**-tdzə	]	*pro*	yə-w-x^{w}aʕ-z	] a-qac'a$_i$
			POSS.WH-house		2SG.M	ABS.WH-2SG.M-buy-PST	DEF-man

'the man whose house you bought' (O'Herin 2002:260)

This fact falls out naturally from the rule in (345)—possessive D bears a φ-probe, and therefore will also have an [Agr] feature. That [Agr] feature causes φ-impoverishment to target the possessive D in (346).

Selayarese is an example of a language in which only absolutive agreement is affected by anti-agreement; ergative agreement is unaffected by Ā-features on the DP that controls it. This non-uniform distribution is shown in (347).

(347) *Non-uniform anti-agreement in Selayarese*

a. Wh-*object (absolutive)* ⟶ *anti-agreement*

apa$_i$	la-taro(***-i**$_i$)	i	Baso'	ri	lamari
what	3ERG-put(-3ABS)	H	Baso	in	cupboard

'What did Baso put in a cupboard?' (Finer 1997:689)

b. *Focused absolutive subject* ⟶ *anti-agreement*

i Baso'$_i$	(a)ng-alle(***-i**$_i$)	doe'
H Baso	INTR-take(-3ABS)	money

'BASO took (some) money.' (Finer 1997:689)

c. *Focused ergative subject* ⟶ *full agreement*

i Baso'$_i$	**la**$_i$-'alle=i	doe'-iñjo
H Baso	3ERG-take-3ABS	money-DEF

'BASO took the money.' (Finer 1997:688)

Recall from section 4.3.2 that I analyze absolutive agreement as spelling out a φ-probe on T and ergative agreement as spelling out a φ-probe on transitive *v*. Thus, Selayarese is a language in which the φ-impoverishment rule responsible for deriving anti-agreement is restricted and only able to target heads of category [T]. The required rule is repeated in (348).

(348) *Selayarese φ-impoverishment*

$[\varphi] \rightarrow \emptyset$ / [__, Ā, T]

Thus, the difference between Abaza and Selayarese is actually quite superficial, in that it is derived by a difference in the application of morphological rules, and not a deeper syntactic difference.

Further support for the idea that such differences are superficial comes from the language Makassarese, which is closely related to Selayarese.[5] The Makassarese agreement system is identical to that of Selayarese—intransitive subjects and definite transitive objects control suffixal absolutive agreement on T, while transitive subjects in clauses with definite objects control prefixal ergative agreement on *v* (Jukes 2013). As in Selayarese, absolutive agreement is suppressed by absolutive argument extraction. Intransitive subject focus and transitive object focus trigger anti-agreement, as seen in (349a) and (349b), respectively.

(349) *Makassarese: uniform, ergative/absolutive anti-agreement*

a. *Intransitive subject focus → anti-agreement*

i	**Ali**$_i$	tinroi(*-**i**$_i$)	—$_i$
H	Ali	sleep(-*3ABS)	

ALI is asleep (Jukes 2013:118)

b. *Transitive object focus → anti-agreement*

mionga$_i$	na$_k$-buno-(***i**$_i$)	—$_i$	kongkonga$_k$
cat.DEF	3ERG-kill-(-*3ABS)		dog.DEF

The dog killed the CAT (Jukes 2013:118)

Unlike in Selayarese, however, in Makassarese, ergative focus triggers a change of morphology. As seen in (350), ergative subject extraction requires the presence of a prefix *an-*, instead of the expected 3rd person ergative agreement prefix *na-*.

(350) *Ergative subject focus → anti-agreement*

kongkonga$_k$	**an**$_k$/***na**$_k$-buno-i$_i$	mionga$_i$	—$_k$
dog.DEF	ERG.AA/3ERG-kill-3ABS	cat.DEF	

The DOG killed the cat (Jukes 2013:118)

I take the prefix *an-* to expone an Ā-feature that is left over on *v* after impoverishment has deleted the φ-features from that head. This is shown in (351).

(351) *Makassarese ergative anti-agreement VI*

an- ↔ [Ā, Agr, *v*]

In other words, anti-agreement in Makassarese is *uniform*, whereas in Selayarese it is *non-uniform*. The morphological account of anti-agreement developed here accounts for this difference in a straightforward way—in Makassarese, φ-impoverishment is able to target

5. Both languages are part of the South Sulawesi languages of the Malayo-Polynesian branch of Austronesian (Grimes and Grimes 1987).

both T and transitive *v*, unlike in Selayarese, where impoverishment is only capable of targeting T. I propose that Makassarese has the φ-impoverishment rule in (352).

(352) *Makassarese φ-impoverishment*
[φ] → Ø / [__, Ā, Agr]

Notice that this is the same rule that is active in Abaza. Just as in that language, the rule in (352) targets all agreement heads in the language (in Makassarese T and transitive v).

In this way, the morphological account is able to capture a small difference between Makassarese and Selayarese anti-agreement with only a minimal morphological difference, namely specifying [T] vs. [Agr] in the contextual restriction of the impoverishment rule. We do not have to posit a deeper syntactic difference between the two languages to capture this divergence, which is desirable, given that the agreement systems of the two languages are otherwise identical, and general syntactic organization is very similar.

The Mayan language Kaqchikel is an example of language with ergative-absolutive agreement alignment and multiple argument agreement in which only ergative argument extraction triggers an anti-agreement effect. As in many other Mayan languages, transitive subject extraction in Kaqchikel requires the so-called *agent focus* form.[6] Agent focus involves the suppression of ergative agreement and the addition of a agent focus suffix. This effect is shown in (353).

(353) *Kaqchikel ergative extraction*

a. *Ergative* wh-*question* → *agent focus/anti-agreement*

Achike	x-Ø-tj-**ö**	ri	wäy?
who	COMPL-3SG.ABS-eat-AF	the	tortilla

‘Who ate the tortilla?’ (Erlewine 2016:430)

b. *Ergative* wh-*question* → *full ergative agreement impossible*

*Achike	x-Ø-**u**-tëj	ri	wäy?
who	COMPL-3SG.ABS-**3SG.ERG**-eat	the	tortilla

Intended: ‘Who ate the tortilla?’ (Erlewine 2016:430)

Agent focus only occurs with ergative extraction. Object *wh*-questions do not trigger the effect, for instance, as shown in (354). Instead, the expected absolutive agreement form (which is in this case null) is found.

6. Agent focus is widely discussed in the Mayan literature and the literature on extraction asymmetries and restrictions. See Coon et al. (2014) for a good overview of the typology of the effect in the family. Adopting a morphological analysis of agent focus in Mayan as I do here is not uncontroversial. Both morphological accounts (Deal 2016c; Stiebels 2006; Watanabe 2017) and syntactic accounts (Assmann et al. 2015; Coon et al. 2014; Ordóñez 1995) are present in the literature.

(354) *Kaqchikel absolutive extraction*

a. *Object* wh-*question* → *regular agreement*

achike	x-Ø-u-tëj	ri a Juan
what	COMPL-3SG.ABS-3SG.ERG-eat	Juan

'What did Juan eat?' (Erlewine 2016:430)

b. *Object* wh-*question* → *agent focus ungrammatical*

*achike	x-Ø-tj-**ö**	ri a Juan
what	COMPL-3SG.ABS-eat-AF	Juan

Intended: 'What did Juan eat?' (Erlewine 2016:430)

I broadly follow Coon et al.'s (2014) analysis of agreement in Q'anjob'al and take absolutive to realize agreement with T and ergative agreement to realize a φ-probe on *v*. In terms of the analysis here, this means that φ-impoverishment applies to only *v* in Kaqchikel; T is unaffected by φ-impoverishment, and therefore, absolutive agreement surfaces even in Ā-contexts. I propose that the following impoverishment rule is active in Kaqchikel:

(355) *Kaqchikel φ-impoverishment*

[φ] → Ø / [__, Ā, *v*]

This rule deletes all φ-features from *v* when *v* has agreed with a DP bearing [Ā]. Here, I assume that this allows for the insertion of the agent focus morpheme (-*ö*, above), just as impoverishment leads to insertion of the *wh*-agreement morpheme *z*- in Abaza. That is, I take the agent focus to be an instance of Ā-exponence, spelling out the Ā-feature that remains after impoverishment. This analysis is shown in (356).

(356) *Kaqchikel agent focus VI*

-ö ↔ [Ā, Agr, *v*]

In the following section, I examine the distribution of anti-agreement in languages with subject and object agreement and a nominative-accusative agreement alignment.

5.2.2 Distribution of anti-agreement in nominative-accusative languages

We expect the same sorts of distributions when considering nominative accusative languages. There should be languages with just subject anti-agreement, just object anti-agreement, and both subject and object anti-agreement. The Austronesian language Palauan (ISO: pau, Palau) provides an example of a language with only subject anti-agreement.

In transitive perfective clauses, Palauan exhibits both subject and object agreement, both for person and number.[7] Subject agreement is prefixal and object agreement is suffixal.[8] Both morphemes can be seen in (357).

(357) *Palauan subject and object agreement*
ke-ʔillebed-**ii**
2SG.REAL-hit.PFV-3SG.OBJ
'You hit him.' (Georgopoulos 1985:61)

The presence of Ā-features on the subject triggers anti-agreement. This is shown for subject *wh*-questions, subject clefts, and subject relative clauses in (358). When the object has an Ā-feature, on the other hand, object agreement is still required in perfective clauses, as shown in (359).

(358) *Subject extraction triggers anti-agreement*

a. *Subject* wh-*question*
ng-te'a$_i$ [a kileld-ii a sub —$_i$]
COP-who DET heat.REAL.PFV-3SG.OBJ DET soup
'Who heated up the soup?' (Georgopoulos 1991:70)

b. *Subject cleft*
ng-ngalek$_i$ [a omes er a bilis —$_i$]
COP-child DET see.REAL.IPFV P DET dog
'It's the child who is looking at the dog.' (Georgopoulos 1985:67)

c. *Subject relative clause*
a ʔad$_i$ [el milʔer-ar tia el buk —$_i$]
DET man C buy.REAL.PFV-3SG.OBJ DEM LK book
'the person who bought that book.' (Georgopoulos 1991:63)

(359) *Object* wh-*question requires object agreement*
ng-ngerai$_i$ [a le-silseb(*-**ii**) —$_i$ a se'el-il]
3SG-what DET 3SG.IRR-burn-3SG.OBJ DET friend-3SG.POSS
'What did his friend burn?' (Georgopoulos 1991:70)

In all three examples in (358), subject agreement is impossible. On the other hand, the object *wh*-question in (359) requires object agreement. In addition, subject and non-subject

7. Object agreement is only possible with perfective transitive verbs. In imperfective clauses, object agreement is unavailable, and all objects are realized as full DPs. See Levin (2018) for discussion and analysis.
8. In addition to agreement, prefixes distinguish two moods, realis and irrealis.

Ā-movement differ in another regard—subject extraction requires the verb in the source clause to be in the realis mood, while non-subject extraction requires irrealis mood. For the remainder of the discussion in this section, I set this second effect aside.

Following Levin (2018), I assume that subject agreement spells out a φ-probe on T and object agreement spells out a φ-probe on *v*. Under these assumptions, the non-uniform nature of agreement suppression in Palauan can be derived in the same way as non-uniform anti-agreement in Selayarese—there is a single φ-impoverishment rule in Palauan, and this rule is restricted to applying to a particular head. Specifically, I propose that Palauan has the impoverishment rule in (360).

(360) *Palauan φ-impoverishment*
$[\varphi] \rightarrow \emptyset$ / [__, Ā, T]

Because the rule in (360) has a contextual restriction that includes the categorial feature [T], it will only apply to that head, deriving the fact that Palauan has only subject anti-agreement. Note that Palauan has the exact same rule as Selayarese (see example 348, above), but the alignment of agreement in Palauan and Selayarese differ. In Palauan, T agrees with the external argument of transitives, while in Selayarese, T is capable of agreeing with either the external or internal argument, depending on the broader syntactic context. Thus, the alignment of anti-agreement emerges as a consequence of the syntax of agreement.

The Bantu language Ndebele (ISO: `nbl`, Zimbabwe) provides an example of a language with only object anti-agreement. First, consider the subject clefts in example (361). As in Lubukusu, subject agreement in Ndebele is for person, gender, and number, with gender and number being realized as class. When the subject is clefted in Ndebele, person features are still expressed.

(361) *Ndebele subject cleft has full agreement*[9]

a. *1st person singular*
yimi$_i$ **engi**$_i$-dlile-yo
COP.1SG 1SG.SBJ.REL-eat-REL
'It's me who ate.' (Asia Pietraszko, p.c.)

b. *2nd person singular*
nguwe$_i$ **o**$_i$-dlile-yo
COP.2SG 3SG.SBJ.REL-eat-REL
'It's you who ate.' (Asia Pietraszko, p.c.)

c. *2nd person singular*
nguye$_i$ **o**$_i$-dlile-yo
COP.3SG CL1.SBJ.REL-eat-REL
'It's him who ate.' (Asia Pietraszko, p.c.)

In this way, Ndebele is different than Lubukusu, where subject extraction requires impoverishment of [PERSON]. However, suppression of person features does surface in object clefts in Ndebele. Consider the following examples of such clefts in (362).

(362) *Ndebele object cleft → anti-agreement*

a. *1st person singular*
yimi$_i$ umama a-**m**$_i$/***ngi**$_i$-thanda-yo
COP.1SG mom CL1.SBJ.REL-CL1.OBJ/1SG.OBJ-like-REL
'It's me who mom likes.' (Asia Pietraszko, p.c.)

b. *2nd person singular*
nguwe$_i$ umama a-**m**$_i$/***ku**$_i$-thanda-yo
COP.2SG mom CL1.SBJ.REL-CL1.OBJ/2SG.OBJ-like-REL
'It's you who mom likes.' (Asia Pietraszko, p.c.)

c. *3rd person*
nguye$_i$ umama a-**m**$_i$-thanda-yo
COP.3SG mom CL1.SBJ.REL-CL1.OBJ-like-REL
'It's him who mom likes.' (Asia Pietraszko, p.c.)

In each of the examples above, a singular object is clefted. Such clefts require object agreement on the verb in the relative clause part of the cleft. When the clefted object is 1st or 2nd person, as in (362a) and (362b), full agreement with the person features of the extracted object is impossible. Instead of the expected object agreement prefix, the class 1 object agreement prefix *m-* surfaces. This is the same pattern of partial φ-impoverishment exhibited by Lubukusu, discussed extensively above, and I suggest the lack of person agreement in (362) to be an instance of partial impoverishment as well.

I assume object agreement in Ndebele spells out a φ-probe on *v*, and that subject agreement spells out a φ-probe on T or in the region of T. Given these assumptions, I propose that the partial φ-impoverishment rule in (363) is active in Ndebele.

9. For an analysis of Ndebele relative clauses, on which clefts are based, see Pietraszko (2018).

(363) *Ndebele [PERSON]-impoverishment*

$$\begin{bmatrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{G}} \\ | \\ \varphi_{\text{P}} \end{bmatrix} \rightarrow \begin{bmatrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{G}} \end{bmatrix} \; / \; [\_\_, \bar{\text{A}}, v]$$

The rule above deletes [PERSON] features from *v* when *v* also bears an Ā-feature. Because the contextual restriction of the rule includes [*v*] and not [Agr], this rule will only apply to object agreement, and not to other heads that bear a φ-probe. This derives the asymmetric nature of Ndebele anti-agreement.

Uniform nominative-accusative anti-agreement is found in another Bantu language, namely Zulu (ISO: `zul`, South Africa). Zulu is closely related to Ndebele, both languages being members of the Nguni branch of Southern Bantu, and thus Zulu provides an example similar to the comparison between Makassarese and Selayarese above. First consider the subject relative clauses with 1st and 2nd person subjects in (364).

(364) *Zulu subject relative clause → partial anti-agreement*

a. *1st person singular*
mina **o**-qotho
1SG CL1.SBJ.REL-honest
'I who am honest' (Doke 1997:108)

b. *1st person plural*
thina **aba**-qotho
1PL CL2.SBJ.REL-honest
'We who are honest' (Doke 1997:108)

c. *2nd person singular*
wena **o**-qotho
2SG CL1.SBJ.REL-honest
'You(SG) who are honest' (Doke 1997:108)

d. *2nd person plural*
nina **aba**-qotho
2PL CL2.SBJ.REL-honest
'You(PL) who are honest' (Doke 1997:108)

The relative clauses in (364) show the same pattern of partial anti-agreement found in Lubukusu relativization. Namely, the feature [PERSON] is suppressed. This leads to 1st and 2nd person singular being indexed by class 1 (gender A, singular) and 1st and 2nd person plural being indexed by class 2 (gender A, plural).

Anti-agreement is also present in object relative clauses, here exemplified by clefts. Consider 1st person singular and 2nd person singular clefted objects in (365a) and (365b), respectively.

(365) *Zulu object cleft → partial anti-agreement*

a. *1st person singular*
yimina$_i$ umfana a-**m**$_i$/***ngi**$_i$-thanda-yo
COP.1SG boy CL1.SBJ-CL1.OBJ/1SG.OBJ-like-REL
'It's me who the boy likes.' (Jochen Zeller, p.c.)

b. *2nd person singular*
nguwena$_i$ umfana a-**m**$_i$/***ku**$_i$-thanda-yo
COP.2SG boy CL1.SBJ-CL1.OBJ/2SG.OBJ-like-REL
'It's you who the boy likes.' (Jochen Zeller, p.c.)

As in the Ndebele object clefts we saw above, Zulu object clefts must have an object agreement prefix. However, the object marker may not match the extracted pronoun in [PERSON]. Instead of the expect 1st or 2nd person object, a class 1 object agreement prefix is found. This is the same suppression of person found in the subject relative clauses in (364).

Thus, both subject relativization and object relativization give rise to partial anti-agreement effects in Zulu. Importantly, however, there is some evidence that the pattern of impoverishment may be different for objects and subject. Jochen Zeller provided the following example of an object cleft with a 1st person plural pivot. Note that here, agreement must be full—person agreement is not suppressed.

(366) *Zulu 1st person plural object cleft requires full agreement*
yithina$_i$ umfana a-***ba**$_i$/**si**$_i$-thanda-yo
COP.1PL boy CL1.SBJ-CL1.OBJ/1PL.OBJ-like-REL
'It's us who the boy likes.' (Jochen Zeller, p.c.)

In (366), a clefted 1st person plural object cannot be indexed with the class 2 object marker *ba-*, but instead must take full agreement in the form of the 1st person plural object marker *si-*. While I do not have an example of an object cleft or object relative clause with a 2nd person plural object, the agreement pattern in (366) is very similar to the second pattern of anti-agreement found in Lubukusu subject extraction, where only singular subjects trigger impoverishment. Given this, I suggest that object anti-agreement in Zulu is an example of the same process, complex φ-impoverishment that targets only φ-bundles that include [−PL].

The Zulu data is significant for two reasons. First, if the object anti-agreement in Zulu is truly of the complex type discussed in chapter 3, then we have a strong argument for object anti-agreement being morphological in the language. I argued in section 3.6 that complex anti-agreement patterns, where a certain φ-feature is required to trigger impoverishment, are impossible to model under current syntactic theories of anti-agreement.

Second, while Zulu anti-agreement is uniform in that subject and object relativization trigger the effect, the morphological rules at play are different. Subject anti-agreement is simple partial impoverishment—[PERSON] is impoverished regardless of the number of the subject. On the other hand, object anti-agreement is complex partial impoverishment—[PERSON] is only deleted in the context of [−PL]. In other words, Zulu demonstrates that languages can employ two *different* φ-impoverishment rules, each restricted to target a different head. For Zulu, I propose the φ-impoverishment rules shown in (367).

(367) *Zulu φ-impoverishment rules*

a. *Subject anti-agreement: simple partial impoverishment*

$$\begin{bmatrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{G}} \\ | \\ \varphi_{\text{P}} \end{bmatrix} \rightarrow \begin{bmatrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{G}} \end{bmatrix} / [\_\_, \bar{\text{A}}, \text{T}]$$

b. *Object anti-agreement: complex partial impoverishment*

$$\begin{bmatrix} \varphi_{\text{N}} - \text{−PL} \\ | \\ \varphi_{\text{G}} \\ | \\ \varphi_{\text{P}} \end{bmatrix} \rightarrow \begin{bmatrix} \varphi_{\text{N}} - \text{−PL} \\ | \\ \varphi_{\text{G}} \end{bmatrix} / [\_\_, \bar{\text{A}}, v]$$

The rule in (367a) derives subject anti-agreement—it deletes [PERSON] from a T head that also has [Ā]. The rule in (367b) derives object anti-agreement—it deletes [PERSON] from a φ-bundle containing [−PL] on a *v* head that also has [Ā].

A final important note regarding subject anti-agreement in Zulu is in order. Namely, Doke (1997) lists the anti-agreement forms in (364), above, alongside the full agreement forms in (368).

(368) *Zulu subject relative clause with full anti-agreement*

a. *1st person singular*
mina **engi**-qotho
1SG 1SG.SBJ.REL-honest
'I who am honest' (Doke 1997:108)

b. *1st person plural*
thina **esi**-qotho
1PL 1PL.SBJ.REL-honest
'We who are honest' (Doke 1997:108)

c. *2nd person singular*
wena **o**-qotho
2SG 2SG.SBJ.REL-honest
'You(SG) who are honest' (Doke 1997:108)

d. *2nd person plural*
nina **eni**-qotho
2PL 2PL.SBJ.REL-honest
'You(PL) who are honest' (Doke 1997:108)

The verbs in the relative clauses in (368) all take agreement prefixes that express the person features of the extracted subject.[10] This is not expected given the impoverishment rule in (367a), as [PERSON] should be absent when the subject is extracted.

Claire Halpert (p.c.) notes that for at least the 1st person singular clefted subjects, both anti-agreement, (364a), and full agreement, (368a), are in active use by Zulu speakers. This suggests that a situation similar to the one Diercks (2010) describes for Lubukusu, where two patterns of partial impoverishment are active for subject anti-agreement and acceptable to the same speakers, may be the case in Zulu as well. However, in Zulu, unlike Lubukusu, it may be the case that impoverishment targeting T applies optionally. Further work is needed to determine the full extent of this optionality.

Taken together, the full range of Zulu facts provides strong support for the morphological theory of probe-based variation in the distribution of anti-agreement. It is unclear how a syntactic model of these effects would account for the variation in morphological leveling patterns at T and *v*, alongside the apparent optionality in subject anti-agreement in the language. The morphological theory, on the other hand, does not have to posit

10. The *o*- prefixes in example (364c) and (368c) are identical segmentally. However, they differ in tone (Doke 1997:108). The prefix found in (364c) is high tone, the same tone as the class 1 relative subject prefix *o*-, while the prefix in (368c) is low tone, the same tone as the 2nd person singular relative prefix *o*-. Thus, the prefixes in the two examples are actually distinct.

deep differences to account for these facts, but is able to account for them with tools that are already present in the theory.

Before closing this section, it should be noted that the assumption that Ndebele and Zulu object φ-feature crossreferencing morphemes are agreement is not uncontroversial. It has been shown that the status of such morphemes, usually referred to as 'object markers' in the Bantu literature, vary across the family. Based on whether object markers can occur together with an object DP in the same clause in a given language, Henderson (2006) proposes that object markers are either pronominal clitics or agreement morphemes. Object markers that can occur together with an object DP are agreement, as in Sambaa in (369). Object markers that cannot double an object DP are pronominal clitics, as in Kinyarwanda in (370).

(369) *Sambaa: object marker can occur with DP → agreement*

N-za-ha-$\boxed{\textbf{chi}_i}$-$\boxed{\textbf{m}_k}$-nka	**Stella**$_k$	**kitabu**$_i$
1sg.sbj-pfv-cl16.obj-cl7.obj-cl1.obj-give	cl1.Stella	cl7.book

'I gave Stella a book there.' (Riedel 2009:76)

(370) *Kinyarwanda: object marker cannot occur with DP → pronominal clitics*

*Abaana	ba-a-ra-$\boxed{\textbf{bi}_i}$-ri-ye	**ibiryo**$_i$	ejo
cl2.child	cl2.sbj-rem.pst-dj-8.OM-eat-PERF	cl8.food	yesterday

Intended 'The children ate the food yesterday.' (Zeller 2014:349)

Henderson, like me, analyzes object agreement in languages like Sambaa as being derived by a φ-probe on *v*. However, according to Henderson, in some languages in which object markers are object agreement, agreement markers cannot cooccur with an object DP when it is VP-internal, but can cooccur with an object DP that has been dislocated outside of VP. This is the case for object markers in Chichewa, shown in (371).

(371) *Chichewa object marking*

a. *Doubled object is VP-internal → no agreement*

??Ndi-ku-fúná	kutí	mu-$\boxed{\textbf{wa}_i}$-páts-é	**alenje**$_i$	mphâtso
1sg.sbj-2sg.obj-want	that	2sg.sbj-cl2.obj-give	cl8.food	cl2.hunters

Intended ''I want you to give the hunters a gift.'

(Bresnan and Mchombo 1987:751)

b. *Doubled object is VP-internal → agreement*

Ndi-ku-fúná	kutí	mu-$\boxed{\textbf{wa}_i}$-páts-é	mphâtso	<u>**alenje**$_i$</u>
1SG.SBJ-2SG.OBJ-want	that	2SG.SBJ-CL2.OBJ-give	CL8.food	gift

Intended ‘‘I want you to give the hunters a gift.’

(Bresnan and Mchombo 1987:751)

The canonical word order in Chichewa double object constructions is indirect object > direct object. When this is the order, as in (371a), the presence of an object marker referring to that indirect object is highly dispreferred. However, when the indirect object is doubled by an object marker, the word order in (371b), direct object > indirect object is greatly preferred. This shows that object marking requires dislocation of the DP crossreferenced by that object marker to a VP external position.[11].

Evidence for the Henderson's analysis of Chichewa object markers as agreement comes from the behavior of object marking in double object constructions. Specifically, while an indirect object marker can be crossreferenced with an object marker, as in (371b), a direct object may not be so indexed, as shown in (372).

(372) *Chichewa: object marker cannot double direct object*

*Alenje	a-ku-ra-$\boxed{\textbf{zí}_i}$-phíkilá	anyáni	**zítúmbûwa**$_i$
CL2.hunters	CL2.SBJ-PRS-CL8.OBJ-cook	CL2.baboons	CL8.pancakes

‘The hunters are cooking them (the pancakes) for the baboons.’

(Mchombo 2004:83)

Henderson argues that this reflects the locality of Agree. In double object constructions in Chichewa, the indirect object c-commands the direct object, and both are c-commanded by the φ-probe on *v*. This means that when *v* probes, the indirect object will always be found before the direct object.

Building on the work of Henderson, Zeller (2014) argues that Zulu object markers are in fact object agreement. He shows that, like in Chichewa, object marking requires a doubled object DP to be VP external.

(373) *Zulu object marking and dislocation*

a. *Doubled object is VP-internal → no agreement*

*Ngi-$\boxed{\textbf{m}_i}$-thengela	**umngane**$_i$ **wami**	le	moto	namhlanje
1SG.SBJ-CL1.OBJ-buy	CL1.friend my	CL9.DEM	CL9.car	today

Intended ‘I'm buying this car for my friend today.’ (Zeller 2014:351)

11. See Bresnan and Mchombo (1987) for additional evidence from tone that objects indexed by an object marker are dislocated.

b. *Doubled object is VP-internal → agreement*

Ngi-$\boxed{\mathbf{m}_i}$-thengela	le	moto	**umngane**$_i$ **wami**	namhlanje
1SG.SBJ-CL1.OBJ-buy	CL1.friend my	CL9.DEM	CL9.car	today

'I'm buying this car for my friend today.' (Zeller 2014:352)

Furthermore, Zulu provides morphological evidence that object marking requires dislocation. Namely, in certain tenses, verbal morphology distinguishes between a "disjoint" and a "conjoint" form. As shown by Halpert (2012), the conjoint form of the verb is only possible when the verb is followed by *v*P internal material. In all other contexts, the disjoint form of the verb is required. As shown in (374), when an object marker is present in the verb, the verb is obligatorily in the disjoint form (the disjoint marker in example 374b is underlined).

(374) *Zulu: object marker requires disjoint marking*

a. *Object marker, conjoint*

*Umama	u-$\boxed{\mathbf{yi}_i}$-pheka	**inyama**$_i$
CL1.mother	CL1.SBJ-CL9.OBJ-cook	CL9.meat

Intended 'Mother is cooking it, the meat.' (Zeller 2014:352)

b. *Object marker, disjoint*

Umama	u-**ya**-$\boxed{\mathbf{yi}_i}$-pheka	**inyama**$_i$
CL1.mother	CL1.SBJ-DJ-CL9.OBJ-cook	CL9.meat

'Mother is cooking it, the meat.' (Zeller 2014:352)

Thus, object marking in Zulu can clearly be seen to require object dislocation. I follow Zeller (2014) and continue to assume that object markers in Zulu and Ndebele, a closely related language of the same subgroup of the family, are object agreement on *v*.

It is not clear whether the distinction between pronominal object marker and object agreement is even crucial to ultimate analysis of these patterns. Scott (2018) shows in Swahili, φ-feature crossreferencing suffixes attached to prepositions show a lack of [PERSON] marking when they correspond to the head of a relative clause. Interestingly, Scott argues that these markers are best analyzed as resumptive pronouns, and not the spell out of φ-probe on P. Regardless, the lack of [PERSON] agreement observed elsewhere in Bantu still obtains. Further research is needed to see how the Swahili pattern can be reconciled with the patterns of anti-agreement discussed for other Bantu languages in this dissertation.

In the next section, I discuss what we learn from the distribution of anti-agreement in languages with ergative-absolutive agreement alignment and in languages with nominative-accusative agreement alignment.

5.2.3 Discussion

Examples (375) and (376) summarize the distributional patterns of anti-agreement that I have examined in the two preceding sections.

(375) *Distribution of anti-agreement in nominative-accusative languages*

a. *Uniform: subject and object anti-agreement*
   Zulu

b. *Non-uniform: object anti-agreement*
   Ndebele

c. *Non-uniform: subject anti-agreement*
   Palauan

(376) *Distribution of anti-agreement in ergative-absolutive languages*

a. *Uniform: ergative and absolutive anti-agreement*
   Abaza, Makassarese

b. *Non-uniform: ergative anti-agreement*
   Kaqchikel

c. *Non-uniform: absolutive anti-agreement*
   Selayarese

As can be seen from these examples, there are no typological gaps in the predicted typology of languages with multi-argument agreement in transitive clauses laid out at the beginning of this section. This fact lends support to the idea that the variation in which probes can be affected by anti-agreement is fundamentally morphological, and not syntactic. Throughout this section, I have demonstrated that the variation across the languages in the above examples can be account for with a simple mechanism—either an impoverishment rule targets all heads bearing the feature [Agr], or it targets a head of a specific category. The former case leads to a uniform distribution of anti-agreement, while the latter case leads to non-uniform distributions.

An important conclusion that emerges from distribution of anti-agreement, both in this chapter and the previous, is that there are no structural generalizations that hold across the language sample and, therefore, it would be extremely difficult to find a unified syntactic analysis of anti-agreement.

In the next section, I turn to languages where the same DP can serve as the goal to multiple φ-probes. We will see that the same sort of distributional behavior shown in this section, where all probes that a goal interacts with may be affected by anti-agreement or only a subset of those probes may be affected by anti-agreement, is evident in these languages as well.

5.3 Multiple probes that interact with the same argument

In the previous section, I examined languages in which multiple φ-probes are able to interact with multiple, distinct arguments. One such language is Fiorentino, in which subject agreement surfaces on the finite verb and in the form of a preverbal subject clitic, as shown in (377).

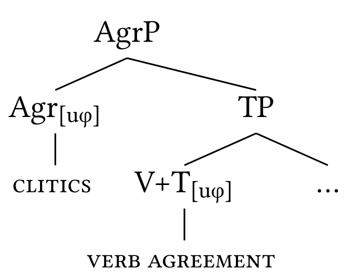
(377) *Basic agreement in Fiorentino*

Mario	e	parl-a
Mario	3SG.M	speak-3SG.PRS

'Mario speaks.' (Brandi and Cordin 1989:113)

In the preceding discussions of Fiorentino, I analyzed subject clitics as realizing a functional head that bears a φ-probe and that is merged above the head that hosts finite verbal agreement (here assumed to be T; Rizzi 1986; Brandi and Cordin 1989 Poletto 2000). This analysis is shown in (378).

(378) *Fiorentino φ-probes*



The φ-probes on Agr and T search into their c-command domains and find the subject DP lower in the structure. After Agree with the subject, the heads Agr and T will have the following form.

(379) *Feature content of Fiorentino Agr and T after Agree*[12]

a. [φ, Agr]

b. [φ, Agr, T]

Both the subject clitic and finite verb agreement are affected by the presence of Ā-features on the subject. As shown in (380), for example, a *wh*-questioned subject triggers default agreement on the clitic and the verb.

(380) *Subject* wh-*questions trigger default agreement*

a.

Quante	ragazze	gli	ha	parlato	con	te
how.many	girls	3SG.M	have.3SG	spoken	with	you

'How many girls have spoken to you?' (Brandi and Cordin 1989:124)

b.

*Quante	ragazze	le	hanno	parlato	con	te
how.many	girls	3PL	have.3PL	spoken	with	you

Intended: 'How many girls have spoken to you?'
(Brandi and Cordin 1989:125)

The subject in (380) is 3rd person feminine plural, yet agreement tracking those φ-features is ungrammatical, as in (380b). Instead, the subject clitic and appears in a default 3rd person masculine singular form, and the finite verb appears in the 3rd person singular form.

In chapter 2, I argued that the appearance of default agreement in examples like (380a) results from φ-impoverishment triggered by the Ā-features responsible for *wh*-movement to Spec-CP. In other words, example (380a) has the structure given in (381).

(381) *Impoverishment applies to Agr and T*

$$\boxed{\text{IMPOVERISHMENT}}$$

$$[_{\text{CP}}\ \text{DP}^{i}_{[\varphi,\,\bar{\text{A}}]}\ \text{C}\ [_{\text{AgrP}}\ \text{Agr}_{[\text{u}\varphi]}\ [_{\text{TP}}\ \text{T}_{[\text{u}\varphi]}\ [\ \ldots\ <\text{DP}^{i}_{[\varphi,\,\bar{\text{A}}]}>\ \ldots\ ]]]$$

[φ, Ā]

[φ, Ā]

The φ-probes on Agr and T both agree with the subject in its base position for [φ] and

12. In terms of the theory of agreement-hosting heads adopted here, the head that is realized as the subject clitic has no other categorial feature. That is, it exists simply to host a φ-probe, but by virtue of hosting a φ-probe, also has an Agr-feature. Nothing crucial rests of this assumption here; it could be that the subject clitic φ-probe is hosted on a more contentful head. The arguments in the discussion here will apply equally in this situation.

[Ā] features before it moves to Spec-CP. As both probes surface with default agreement, I argued that both are targeted for φ-impoverishment. This analysis requires reference to only one impoverishment rule, repeated below in (382).[13]

(382) *Fiorentino impoverishment*

$$\begin{bmatrix} \varphi_{\text{N}} & & \\ | & & \\ \varphi_{\text{G}} & & \\ | & & \\ \varphi_{\text{P}} & — & -\text{PART} \end{bmatrix} \rightarrow \ \varnothing \ / \ [\_, \bar{\text{A}}, \text{Agr}]$$

The contextual restriction of the rule in (382) refers to [Agr], meaning that it will apply to any head bearing a φ-probe. This is the same type of non-uniform behavior we saw in languages like Abaza, Zulu and Makassarese in the previous section.

Similar facts hold for the Bantu language Lubukusu. Recall that Lubukusu subject extraction involves the addition of a second agreeing prefix to the verb to the left of the normal subject agreement prefix, as shown in (383).

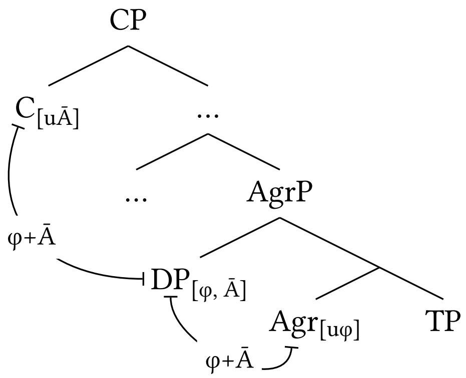
(383) *Extracted subjects require an additional agreeing prefix*

sisiindu$_i$ **si**$_i$-**sy**$_i$-a-kwa
CL7.thing CL7.C-CL7.SBJ-PST-fall
'the thing which fell' (Diercks 2010:117)

In chapter 3, I analyzed the normal subject agreement prefix as the realization of an Agr head above TP. Following Diercks (2010), I analyzed the second agreeing prefix a spelling out the C involved in Ā-extraction. The presence of φ-agreement on C follows from the theory of Agree assumed here—when the Ā-probe on C finds the subject DP in Spec-AgrP, it will interact with both [φ] and [Ā] on that DP and copy back both sets of features. This is shown in (384).

13. Recall that Fiorentino has complex impoverishment triggered by the feature [−PART]. See section 3.5.2 for discussion.

(384) *Agree relations in Lubukusu subject extraction* (after Diercks 2010)



Following the Agree relations in (384), the two heads will have the feature content shown in (385).

(385) *Feature content of Lubukusu Agr and C after Agree in (384)*

a. [φ, Ā, Agr]

b. [φ, Ā, Agr, C]

Both feature bundles are targeted for (partial) φ-impoverishment in Lubukusu: 1st and 2nd person subjects level to class 1, which itself has a changed exponent: *o*-, instead of the expected *a*-. This effect is shown in (386) and (387).

(386) Wh-*question with class 1 subject*

naanu	**o**-**w**-a-tim-a
cl1.who	cl1.C-cl1.aa-pst-run-fv

'Who ran?' (Wasike 2006:236)

(387) *Subject extraction of 1sg and 2sg*

a.

Nise	**o**-**w**-onak-e	kumulyango	kuno
1sg	cl1.C-cl1.aa-damage-pst	cl3.door	cl3.dem

'It is I who damaged the door' (Diercks 2010:133)

b.

Niwe	**o**-**w**-onak-e	kumulyango	kuno
2sg	cl1.C-cl1.aa-damage-pst	cl3.door	cl3.dem

'It is you(sg) who damaged the door' (Diercks 2010:133)

Evidence that both C and Agr are targeted for impoverishment comes from the fact that they share the same exponent, namely underlying /o/. This prefix is the underspecified vocabulary item in the Lubukusu paradigm, spelling out only [gender] and [number] features. The impoverishment rule in (388) deletes [PERSON] features from both C and Agr.[14]

(388) *Lubukusu [PERSON]-impoverishment*

$$\begin{bmatrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{G}} \\ | \\ \varphi_{\text{P}} \end{bmatrix} \rightarrow \begin{bmatrix} \varphi_{\text{N}} \\ | \\ \varphi_{\text{G}} \end{bmatrix} \; / \; [\_\_, \bar{\text{A}}, \text{Agr}]$$

Just as in the analysis of the Fiorentino pattern, only a single impoverishment rule is required to capture the deletion of [PERSON] on C and Agr. The rule refers to [Agr], and not a categorial feature like [C], and therefore will apply to both the head C and the head Agr equally.

An alternative explanation for the lack of person agreement on relative C in Lubukusu is offered by Diercks (2010). Following Henderson (2013), Diercks argues that Bantu C simply never agrees for [PERSON], precluding the possibility of that feature from ever surfacing morphologically in the first place. I reject this alternative for the following reasons. First, there are crosslinguistically, person agreement is possible on C-level projections[15], and thus we cannot rule out the possibility that a complementizer agrees for [PERSON] even if those features are not spelled out. Second, from a theoretical perspective, the approach to Agree assumed here does not allow a probe to copy back [GENDER] and [NUMBER] features without also copying back [PERSON]. This is because a probe copies back all features that it interacts with, and there is (by hypothesis) no crosslinguistic variation in probes' interaction conditions (Deal 2015). Thus, within this framework, systematic lack of person agreement on a head must be captured in the morphology.

Alongside languages like Fiorentino and Lubukusu, where an Ā-marked DP triggers anti-agreement on all probes that agree with it, we expect to find languages where only a subset of probes that agree with the same Ā-marked DP are targeted for impoverishment. In other words, the theory of probe-based variation I argue for predicts that a language like Fiorentino, where multiple probes agree with the same DP, except in which only one of those probes is affected by anti-agreement.

This prediction is confirmed by data from the Atlantic language Seereer (ISO: `srr`, Senegal). Seereer is an SVO language, and the verb agrees with the subject for person and number. Verbs take an agreement affix; in addition, verbs beginning in certain con-

14. Recall that there in fact two patterns of impoverishment in Lubukusu. The first, shown here in (388), is simple partial φ-impoverishment that deletes [PERSON] uniformly. The second is a complex φ-impoverishment rule that deletes [PERSON] only in the presence of [−PLURAL]. Both patterns of impoverishment target both C and Agr, and thus the discussion here extends equally to the second pattern of impoverishment. See section 3.5.4 for discussion.

15. See Koppen (2017) for an overview of complementizer agreement.

sonants undergo a process of consonant mutation when their subject is plural.[16] This is exemplified for 3rd person agreement in (389).

(389) *3rd person agreement*

a. okoor oxe **a**-jaw-a maalo fe
man the 3-cook.SG-FV rice DET
'The man cooked rice.'

b. goor we **a**-**njaw**-a maalo fe
men the 3-cook.PL-FV rice DET
'The men cooked rice.'

In (389a) the verb takes the 3rd person agreement prefix *a-* and the verb surfaces with its underlying initial consonant <j> (phonetically a voiced palatal stop [ɟ]). In (389b), the same prefix *a-* appears, but the verb undergoes plural mutation: the initial consonant is a prenasalized palatal stop <j> ([^{n}ɟ]). Verb stems that have initial consonant mutation are underlined throughout the discussion of Seereer in this section.

Although the 3rd person subject agreement prefix *a-* is underspecified for number, the fact that the subject is plural is still explicitly reflected by consonant mutation. This is the case even when the subject agreement affix overtly encodes the number of the subject, as is the case for all 1st and 2nd person agreement affixes.

(390) *1st/2nd person agreement*

a. *1st person singular*
(mi) jaw-a-**am** maalo fe
1SG 3-cook.SG-FV-1SG rice the
'I cooked the rice.'

b. *1st person plural*
(in) **i**-**njaw**-a maalo fe
1PL 1PL-cook.PL-FV rice the
'We cooked the rice.'

c. *2nd person singular*
(wo) jaw'a-**a** maalo fe
2SG cook.SG-FV-2SG rice the
'You cooked the rice.'

16. See **?** for a discussion of consonant mutation in Seereer.

d. *2nd person plural*

(nuun)	**nu**-**njaw**-a	maalo	fe
2PL	2PL-cook.PL-FV	rice	the

'You(PL) cooked the rice.'

The examples in (390a) and (390b) exemplify 1st person agreement and the examples in (390c) and (390d) exemplify second person agreement. As can be seen clearly from the examples above, the presence of mutation on the verb stem is not dependent on the lack of number features on the agreement affix. That is, Seereer exhibits multiple exponence for number.

Besides agreement affixes, the verbs in (389) and (390) take a suffix *-a* which I refer to as the final vowel (glossed FV). This is one of two final suffixes that all finite verbs in Seereer take; the second final suffix, *-u* is discussed below. The entire paradigm of finite verb agreement is shown in table 5.4. The presence of mutation is indicated by a subscript '+M' on verbs in the plural half of the table.

	SG	PL
1	V-*a*-*um*	*i*-V_{+M}-*a*
2	V-*a*-*o*	*nu*-V_{+M}-*a*
3	*a*-V-*a*	*a*-V_{+M}-*a*

Table 5.4: Seereer subject agreement

The 1st person singular suffix *-um* and the 2nd singular person suffix *-o* in table 5.4 are underlying representations. The initial vowel of the agreement suffix assimilates to the final vowel *-a*, yielding *-aam* and *-aa* for 1SG and 2SG, respectively.

Plural initial mutation and segmental subject agreement affixes spell out distinction instances of syntactic agreement. Evidence for this comes from the fact that plural mutation is obligatory on infinitives, even though infinitives lack subject agreement morphology and any final suffix. Consider the examples in (391).[17]

(391) *Plural mutation on infinitives*

a.

a-**mbar**-a	[	(o)	**ndet**]
3-must.PL-FV		INF=	go.PL

'They must go.'

17. Infinitives in Seereer are optionally preceded by the infinitive marker *o*.

b. i-**ndoor**-'-a [(o) **njeem**-aa [(o) **ngat** waxtu kom nqes]]
1PL-start.PL-PST-FV INF try.PL-PROG INF come.home.PL hour like morning
'We started out trying to get back home at an hour like morning.'

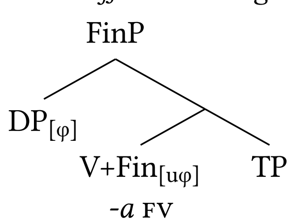
c. i-**mbaag**-a [(o) **njaw** maalo]
1PL-be.able.PL-FV INF cook.PL rice
'We can cook rice.'

All three examples in (391) have a plural subject in the matrix clause, and the verb in the matrix clause takes an infinitival complement. While subject agreement affixes are absent in the infinitival clause, plural consonant mutation is present. This is also the case when the embedded verb itself takes an infinitive complement.

I conclude from the data in (391) that subject agreement affixes and plural mutation realize distinct agreement probes. We can then understand the asymmetry in the distribution of agreement affixes and plural mutation in terms of clause structure. Agreement affixes spell out a probe hosted on a head that is simply not present in infinitives.

Specifically, I adopt Baier's (2018) analysis of segmental agreement morphology in Seereer as spelling out a φ-probe hosted on the head Fin, which encodes the finiteness of the clause (Rizzi 1997). I also follow that analysis in taking the final vowel *-a* to spell out Fin, and that the verb moves to Fin when it is present in the clause. Furthermore, I assume that the subject DP moves to Spec-FinP after it has agreed with Fin. This analysis is shown in (392).

(392) *Final suffix -a and agreement occupy Fin*



Given this analysis, Fin will have the feature bundle in (393) after it has agreed with the subject. The vocabulary items necessary to model the paradigm in table 5.4 based on this feature bundle are given in (394).[18]

18. For the analysis with the VIs in (394) to go through, the theory must allow for multiple VIs to be inserted into a single feature bundle. Several mechanisms have been suggested in the DM literature to allow for this possibility, including the splitting of a single feature bundle into multiple bundles (fission, Noyer 1992 Halle 1997) or simply allowing multiple rounds of vocabulary insertion to apply to the same feature bundle (Campbell 2012; Trommer 1999). The exact mechanism is not crucial here.

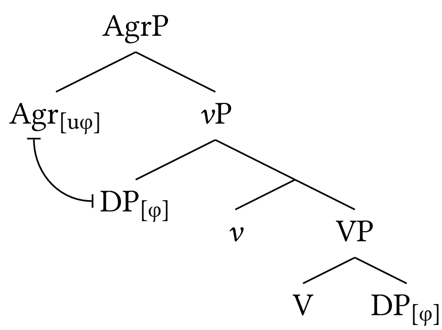
(393) *Feature bundle for Fin*
[φ, Agr, Fin]

(394) *Seereer VIs for Fin*

a. -um ↔ [+PART, +AUTH, -PL, Agr] / [__, Fin]
b. -o ↔ [+PART, -AUTH, -PL, Agr] / [__, Fin]
c. i- ↔ [+PART, +AUTH, +PL, Agr] / [__, Fin]
d. nu- ↔ [+PART, +AUTH, +PL, Agr] / [__, Fin]
e. a- ↔ [-PART, -AUTH, Agr] / [__, Fin]
f. -a ↔ [Fin]

I propose that the φ-probe responsible for plural mutation is hosted on a dedicated Agr head directly above *v*P. This φ-probe agrees with the highest DP inside *v*P. For transitive verbs, this will be the external argument and for intransitive verbs it will be the sole argument of the verb, whether or not that DP is introduced in Spec-vP (for unergatives) or inside VP (for unaccusatives). This is shown in (395) for a transitive predicate.

(395) *Agr probe merged above vP*



I assume that the verb always raises at least as high as this Agr projection, and that when Agr has agreed with a DP with [+PL], the verb undergoes plural consonant mutation. Here, I will represent this process as a separate VI, shown in (396), but nothing crucial rests on this assumption.[19]

(396) *Seereer plural mutations*
plural mutation ↔ [+PL, Agr]

In the analysis, in clauses that have a FinP layer, there are two probes that agree with the subject—the φ-probe on the Agr head merged directly above *v*P and the φ-probe on Fin.

19. I assume that the VI in (396) cannot be inserted at Fin because it does not have a morphophonological effect there.

An advantage of this analysis of plural mutation is that it is able to capture the generalization that *surface* subjects, including derived subjects like those of passives, trigger plural agreement, as shown in (397)

(397) *Plural mutation controlled by passive subject*

goor	we	a-**mbar**-e
men	the	3-kill.PL.PASS

'The men were killed.'

Under the current proposal, (397) involves Agr agreeing with the internal argument *goor we* 'the men' before that DP is promoted to subject. This is possible because the external argument of the transitive predicate is suppressed.[20]

These two φ-probes behave differently in the context of Ā-movement of the subject. In subject *wh*-questions, subject focus constructions, and subject relative clauses, subject agreement affixes are obligatorily absent, regardless of the person/number features of the subject. Examples of this effect for singular subjects are given in (398).

(398) *Subject extraction suppresses agreement affixes*

a. *Subject* wh-*question*

xar	(***a-**)ref-u	took	ataabul	ale?
what	3-be.SG-FOC	on	table	the

'What is on the table?'

b. *Subject* wh-*question*

an	(***a-**)jaw-u	maalo?
who	3-cook-FOC	rice

'Who cooked rice?'

c. *Subject focus, 1st person singular*

mi$_{\text{FOC}}$	foon-u(***-um**)	a	Yande
1SG	kiss.SG-FOC-1SG	OBJ	Yande

'It's me who kissed Yande.'

d. *Subject focus, 2nd person singular*

wo$_{\text{FOC}}$	ñaam-u(***-o**)	maalo	'an
2SG	eat.SG-FOC-2SG	rice	1SG.POSS

'It's you who ate my rice.'

20. Plural mutation in Seereer is reminiscent of verb stem suppletion in the Uto-Aztecan language Hiaki, where a plural internal argument conditions a suppletive root of certain verbs (Bobaljik and Harley 2017; Harley et al. 2016). Seereer differs from Hiaki in that plural mutation can be triggered by external arguments and derived subjects.

e. *Subject relative clause*[21]

okoor	**oxe**	[$_{\text{CP}}$	(***a-**)jaw-Ø-na	mallo	fe	]
man	the		3-give.SG-FOC-REL	rice	the	

'the man that gave him the rice'

In all of the examples in (398), the verb cannot take a subject agreement affix. In addition, the verb does not take the final suffix *-a*, but instead appears with the suffix *-u*, which I hear refer to as the *focus suffix* (glossed FOC). The focus suffix is obligatory on any finite verb in a clause in which there is Ā-movement, regardless of whether a subject or non-subject is extracted. In other words, suppression of subject agreement affixes is separate from the appearance of the focus suffix *-u*, as can be seen from the object *wh*-question in (399).

(399) *Object* wh-*question*

xar	Jegaan	*(a-)jaw-'-**u**?
what	Jegaan	3-cook-PST-FOC

'What did Jegaan cook?'

Thus, *-u* is different than the suppression of subject agreement affixes, in that *-u* is present in the case of Ā-movement in general, while subject affixes are suppressed just in cases of subject Ā-movement.[22] That these are separate is seen clearly in (399), where the 3rd person agreement prefix *a-* cooccurs with the suffix *-u*. Such examples show that subject agreement suppression and *-u* marking are distinct phenomena.[23]

Returning to the behavior of agreement in the context of subject Ā-movement, we see from (400) that subject agreement affixes are also suppressed when the moved subject is plural. However, in this case, plural consonant mutation still surfaces on the verb.

(400) *Subject extraction does not suppress plural mutation*

a. *Subject* wh-*question*

muus kum	(***a-**)<u>**ndef**</u>-u	took	ataabul	ale?
cat which.PL	be.PL-FOC	on	table	DET

'Which cats are on the table?'

21. Relative clauses involve a suffix *-na* that occurs after all suffixes in the verb. I follow Baier's (2018) of this suffix as a Force head that lowers to Fin in the morphology. See Baier (2018) for discussion.

22. The suffix *-u* is present in all cases of Ā-movement seen above—*wh*-movement, focus movement, and relativization. As seen in (398e) and (400d) (below), the suffix *-u* has the allomorph Ø when followed by the suffix *-na*.

23. I take *-u* to be the spell out of the head Fin in the presence of an Ā-dependency. Evidence for the location of this suffix comes from the fact that it is in complementary distribution with the final suffix *-a*, and the fact that it appears only in finite clauses. I present a more precise analysis of *-u* in the next chapter.

b. *Subject focus, 1st person plural*

in$_{\text{FOC}}$	(***i-**)**njaw**-u	ñaamel ke
1pl	1PL-cook.PL-FOC	food DET

'It's us who cooked the food'

c. *Subject focus, 2nd person plural*

nuun$_{\text{FOC}}$	(***nu-**)**nga'**-u	a	Yande
2PL	2PL-see.SG-FOC	OBJ	Yande

'It's you guys who saw Yande.'

d. *Subject relative clause*

goor we	[$_{\text{CP}}$	(***a-**)**ndet**-Ø-na	Dakaar]
man DET		3-go.PL-FOC-REL	Dakaar

'the men who went to Dakaar'

In all four examples in (400), the verb cannot take an agreement prefix, yet still appears in its mutated form. The pattern is summarized in table 5.6. Table 5.4 is repeated as table 5.5 for comparison.[24]

	SG	PL
1	V-*a-um*	*i*-V_{+M}-*a*
2	V-*a-o*	*nu*-V_{+M}-*a*
3	*a*-V-*a*	*a*-V_{+M}-*a*

Table 5.5: Seereer φ-agreement

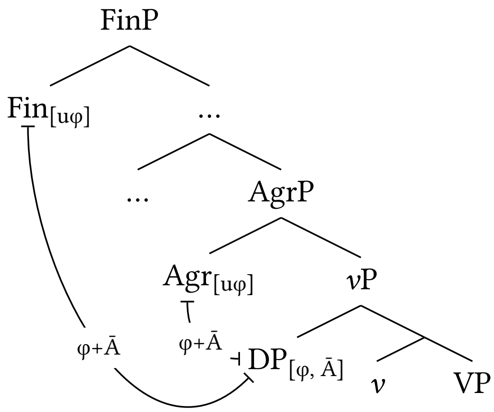
	SG	PL
1	V-*u*	V_{+M}-*u*
2	V-*u*	V_{+M}-*u*
3	V-*u*	V_{+M}-*u*

Table 5.6: Seereer anti-agreement

Superficially, the pattern of syncretism that emerges in anti-agreement contexts in table 5.6 looks like a case of partial anti-agreement as discussed in chapter 3. However, I argue that this pattern actually emerges from the non-uniform application of a total φ-impoverishment rule that only targets Fin. When the subject DP has Ā-features, the φ-probe on Fin and the φ-probe on the Agr projection above *v*P will copy back both [φ] and [Ā] from that DP, as shown in (401):

24. The segmentation of the 1st person singular and 2nd person singular forms in table 5.5 represent the underlying forms of those cells. A regular morphophonological process of vowel coalescence leads to the surface form *-aam* for 1st person singular and *-aa* for 2nd person singular.

(401) *Agreement in subject extraction contexts*



Following the Agree relations in (401), the two heads will have the feature content shown in (385).

(402) *Feature content of Lubukusu Agr and C after Agree*

a. [φ, Ā, Agr]

b. [φ, Ā, Agr, Fin]

I propose that in Seereer, there is a single, full φ-impoverishment rule, but that this rule targets only Fin. Specifically, I propose the impoverishment rule in (403).

(403) *Seereer φ-impoverishment rule*

$[\varphi] \rightarrow \varnothing$ / [__, Ā, Fin]

This rule deletes all φ-features on a Fin head that also bears an Ā-feature. Because the rule's contextual restriction contains the categorial feature Fin, however, and not the feature [Agr], the rule in (403) will *not* apply to the Agr head that is responsible for plural mutation on a verb. This means that plural mutation will surface in subject extraction contexts, even when segmental agreement morphology does not surface.

Seereer demonstrates that φ-probes that agree with the same argument need not behave uniformly when that argument has Ā-features. This is exactly what we saw for languages where multiple φ-probes target multiple arguments in the previous section. In such cases, all φ-probes could be affected or only a subset of probes could be affected. The same typology repeats in languages where multiple probes agree with the same DP. Both results are predicted by the morphological theory of probe-based variation developed in this dissertation.

5.4 Summary

In this chapter, I examined the distribution of anti-agreement in languages with multiple φ-probes in the same clause. I showed that there is no crosslinguistic asymmetry with regard to which arguments may trigger anti-agreement. This is captured by the All φ-probes generalization, repeated in (404).

(404) *All φ-probes generalization*
Crosslinguistically, any XP that triggers φ-agreement is in principle be capable of triggering anti-agreement on any φ-probe that it interacts with.

It has often been stated in the literature on anti-agreement that the effect is limited to being triggered by grammatical subjects. This claim is clearly at odds with the All φ-probes generalization. As we have seen throughout this chapter, all manner of argument types can trigger anti-agreement. This presents a challenge for syntactic accounts of anti-agreement, as the assumption that there is an asymmetry in which arguments can trigger anti-agreement has led to the use of asymmetric constraints to derive the effect.

On the other hand, the lack of systematic gap in which arguments may trigger anti-agreement does not pose such a problem for the morphological theory in this dissertation. I showed in sections 5.2 and 5.3 that a simple morphological theory of probe-based variation, in which impoverishment rules may either refer to the feature [Agr] or a categorial feature like [T] or [*v*] in their contextual restriction, captures the attested range of patterns exhibited crosslinguistically.

If an impoverishment rule is specified as occurring in the context of the feature [Agr], a language will exhibit a uniform distribution of anti-agreement—any head that bears a φ-probe will be affected by φ-impoverishment. This is the case, for instance, in Abaza, where all φ-probes are affected by anti-agreement when they have agreed with a DP bearing an Ā-feature. This is also the case in Fiorentino, where multiple φ-probes in the same clause are affected by anti-agreement when they have agreed with a single DP bearing an Ā-feature. When impoverishment rules are restricted to the context of a more specific categorial feature like [T] or [*v*], a non-uniform distribution of anti-agreement will result. For instance, this is the case in Selayarese, where the presence of an Ā-feature on a DP only affects the expression of φ-agreement on T, and not the expression of φ-agreement on *v*. In Seereer, there are two φ-probes that agree with subjects, one on the head Fin and above *v*P, but only the probe on Fin is affected by anti-agreement.

The following chapter concludes the dissertation and offers an outlook on the ramifications of the theory I have developed over the course of this and the preceding chapters.

Chapter 6

Conclusion

6.1 Review of the dissertation

In the preceding chapters, I have argued that changes to the form of φ-agreement with a DP bearing Ā-features is best modeled as arising in the *morphological component*. Specifically, I have argued that the presence of an Ā-feature on the goal of φ-agreement may lead to *impoverishment* of the φ-features from the probe.

In chapter 2, I showed that there was a deep similarity in the patterns of agreement with an Ā-feature bearing DP in Abaza, Tarifit, and Fiorentino, even though these languages differ in the exact morphological outcome of this situation. Namely, in all three languages, the morphology that is used in the Ā-context is *underspecified*. The theory of anti-/*wh*-agreement effects that I develop is designed to capture this deep morphological similarity between the languages.

The first part of the proposal is that φ-agreement is sensitive to the presence of Ā-features on a goal DP. Specifically, I proposed that φ-probes copy back both [φ] and [Ā] features from a DP with both those features.

(405) *Ā-sensitive φ-agreement*

$[\ \ldots\ \underbrace{\mathrm{H}_{[\mathrm{u}\varphi]}\ \ldots\ \mathrm{DP}}_{\varphi+\bar{\mathrm{A}}}{}_{[\varphi,\ \bar{\mathrm{A}}]}\ \ldots\ ]$

Ā-sensitive φ-agreement leads to a feature bundle on the probe that contains both [φ] and [Ā] features.

The second part of the proposal is that *φ-impoverishment* may target the feature bundle containing [φ] and [Ā] features in the morphology. This derives the emergence of new syncretisms in the presence of Ā-features on the goal. In some languages, such as Abaza, this may also allow for the spelling out of morphology that realizes the remaining Ā-feature that triggered impoverishment.

In chapter 3, I examined the morphological patterns that emerge in the context of Ā-features. I showed that leveling of φ-features in the presence of Ā-features can be total or partial and that the patterns of partial leveling are limited—there is an implicational hierarchy, given in (406), that governs which contrasts can be leveled. Thus, the survey establishes the Feature Hierarchy generalization, shown in (407).

(406) *Feature Impoverishment Hierarchy (FIH)*
PERSON ≪ GENDER ≪ NUMBER

(407) *Feature Hierarchy generalization*
Anti-agreement may be partial. Partial anti-agreement conforms to the FIH.

Building on much existing work on the structure of φ-features, I adopted a version of Campbell's (2012) two dimensional φ-geometries. These rich feature sets capture both dominance relations among φ-feature *categories* (PERSON, GENDER and NUMBER) and entailment relations between *subfeatures* within those categories (such as ±PARTICIPANT and ±AUTHOR). I argued that impoverishment operates over these rich φ-sets. Coupled with a constraint that restricts deletion to φ-categories, this theory of impoverishment derives all and only the patterns allowed by the hierarchy (406).

Furthermore, I showed that impoverishment in the context of Ā-features may be conditioned by the presence of certain φ-features within the targeted bundle, a phenomenon I refer to as *complex impoverishment.* I demonstrated that both marked (such as +PARTICIPANT or +PLURAL) and unmarked features (such as -PARTICIPANT or -PLURAL) are attested as this second conditioning feature. Complex impoverishment therefore provides a compelling argument for treating Ā-sensitive agreement effects as resulting from a morphological operation, and not simply as the failure of syntactic agreement.

A further argument supporting this conclusion is the fact that φ-feature impoverishment and the exponence of the Ā-feature that triggers impoverishment are formally independent. I refer to this result as the Impoverishment/Ā-exponence Independence generalization, as shown in (408).

(408) *Impoverishment/Ā-exponence Independence generalization*
Leveling of φ-feature distinctions in the Ā-context may occur without exponence of the Ā-feature itself, and vice versa.

That is, a language may have reduced φ-feature contrasts in the context of an Ā-feature without ever morphologically realizing that feature. This is the case in Fiorentino. On the other hand, the Ā-feature may be realized without any φ-impoverishment taking place. This is the case in Kobiana, where an entirely new φ-agreement paradigm emerges in the context of the feature [FOC], with the same number of contrasts that are found in the baseline paradigm (see section 3.7).

That all six logical possibilities of φ-impoverishment and Ā-exponence are attested crosslinguistically suggests that φ-agreement is *always* Ā-sensitive, as codified in the Ā-Sensitivity Uniformity Hypothesis.

(409) *The Ā-Sensitivity Uniformity Hypothesis (ASUH)*

All φ-probes are Ā-sensitive—they interact with Ā-features on their goal(s). There is no crosslinguistic variation in this property.

The ASUH forces variation in the distribution of anti-agreement completely into the morphological component. It holds that the syntax of agreement is uniform regardless of the presence of an Ā-feature. What causes variation is whether or not there is an applicable impoverishment rule for a given probe-goal pair.

I explored two consequences of the ASUH in chapter 4. First, I presented data from Tundra Nenets and Abaza that movement is not required to trigger anti-/*wh*-agreement effects. Tundra Nenets exhibits anti-agreement with true *wh*-in-situ, and Abaza exhibits anti-agreement triggered by pronouns bound by Ā-operators. Furthermore, I showed that in the languages Dinka and Selayarese, although anti-agreement is linked to Ā-movement, the variation in which arguments and which Ā-dependencies trigger these effects cannot be explained in terms of their syntactic structure. In Dinka, syntactically identical Ā-dependencies differ as to whether they have a morphological effect on agreement. In Selayarese, there is no unique structural configuration that leads to anti-agreement.

I explored probe-based variation more carefully in chapter 5, focusing on languages in which clauses may contain multiple φ-probes. I discussed two types of cases. First, I examined the distribution of anti-agreement in languages where there are multiple φ-probes in a clause and these φ-probes always (or sometimes) target different arguments. I showed that there is no systematic asymmetry in which heads are targeted for anti-agreement in such languages. I then discussed languages in which there are multiple φ-probes in a clause and those φ-probes target the same argument. We saw again that there is no systematic gap in the distribution of which heads are targeted for impoverishment in these languages.

These facts led me to conclude that the link between anti-agreement and movement is *illusory*. Because Ā-movement is derived by the presence of certain Ā-features on the moving DP, anti-agreement will most often coincide with Ā-movement. But there are places where this correlation comes apart. All that is necessary for the emergence of anti-agreement is the presence of an Ā-feature on a DP.

The picture that emerges from this is a theory of anti-/*wh*-agreement in which there is no disruption to the syntax of agreement when a goal of agreement undergoes Ā-movement. Instead, morphological effects emerge in this context because of φ-probes are Ā-sensitive, copying back [φ] and [Ā] features from their goals, and because of the way the morphological component treats the specific combination of features [φ+Ā]. The division of labor between syntax and morphology in this theory of anti-agreement, and where variation is located, is summarized in figure 6.1.

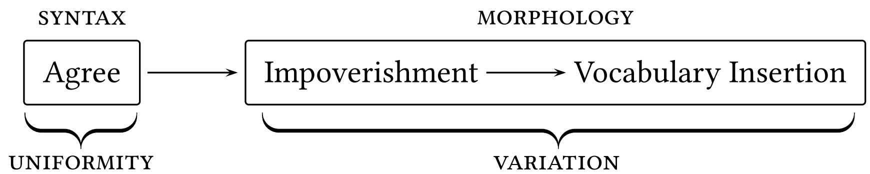


Figure 6.1: Loci of variation in the theory

While the explanatory 'action' of the theory is spread across two components of the grammar (Ā-sensitive φ-agreement in the syntax, φ-impoverishment/Ā-exponence in the morphology), the loci of crosslinguistic variation is located completely in the morphological component. This variation is divided among two steps of the postsyntactic component. First, application of impoverishment to a [φ+Ā] bundle is variable. We have seen this both crosslinguistically and within the same language. There are several parameters along which the application of impoverishment varies.

(410) *Factors governing variation in application of φ-impoverishment*

a. Whether or not impoverishment targets a particular node bearing a φ-probe

b. Whether or not there is a specific φ-feature that triggers impoverishment.

c. Whether or not a specific Ā-feature triggers impoverishment.

All of these parameters are encoded via features in the theory proposed here. For example, parameter (410a) is encoded with categorial features. An impoverishment rule in one language might target nodes with [Agr], meaning that all φ-probes in that language are affected, while in another language an impoverishment rule might only target T heads, meaning only agreement on T is affected by the presence of Ā-features. This derives the All φ-probes generalization, repeated here in (29).

(411) *All φ-probes generalization*

Crosslinguistically, any XP that triggers φ-agreement is in principle be capable of triggering anti-agreement on any φ-probe that it interacts with.

Second, there is variation in the inventory of vocabulary items a language has at its disposal, and how these VIs will be utilized after impoverishment. For some languages, like Abaza, there will be a VI that realizes the Ā-feature that remains after impoverishment has taken place. In other languages, like Fiorentino, there will be no such morpheme, and a VI that already is used in the agreement paradigm will emerge.

This theory of variation relies on tools needed independently in a postsyntactic model of morphology like DM. While Vocabulary Insertion is regulated by a set of universal principles, the vocabulary items available at that stage of the morphological derivation vary from language to language. Clearly, not all languages employ the same set of morphological operations, nor do all languages do have the same inventory of vocabulary items. Differences in these components of grammar are independently required of any theory of morphology. That the theory of anti-agreement developed in this dissertation does not require major revision of the theory of impoverishment or Vocabulary Insertion is an argument in favor of my account over analyses which require additional syntactic mechanisms.

To close out the dissertation, I discuss some of the further consequences of my theory and some of the challenges that it faces. In section 6.2, I discuss environments in some languages where anti-agreement is expected to occur yet does not surface, namely, languages in which apparent long distance movement or clausal negation has an effect on anti-agreement. In section 6.3, I return to the relation to between syntactic constraints on movement and anti-agreement. Specifically, I take up the question of whether there are languages in which lack of φ-agreement in the Ā-context results from an extraction restriction on the agreement controller. I conclude that the best candidates for such languages are those in which Ā-movement of a DP coincides not only with loss of agreement indexing that DP, but also coincides with a expansion or change of agreement possibilities in the clause. I conclude with a discussion of other morphological effects induced by Ā-dependencies crosslinguistically in section 6.4. I situate anti-agreement within this typological space, and offer preliminary discussion of how my theory of anti-agreement extends to these cases.

6.2 Absence of expected anti-agreement

Since Ouhalla's (1993) original article on anti-agreement, it has been known that in some languages, certain conditions may block the appearance of anti-agreement even when it would otherwise be expected. In this section, I discuss two of these contexts—long distance movement of an agreement controller that is expected trigger anti-agreement and clausal negation of a clause in which an agreement controller is expected to trigger anti-agreement. I first turn my attention to the local/long distance movement asymmetry and then discuss the affect of clausal negation on anti-agreement.

In some languages in which local Ā-movement of a DP triggers anti-agreement, long distance Ā-movement out of an embedded clause does not trigger anti-agreement. This is the case for all Berber languages with anti-agreement. Recall that local extraction of a subject in Tarifit requires the verb to be in the participle form, as shown in (412).

(412) *Tarifit: local extraction requires anti-agreement*

man tamghart$_i$	ay	**yzrin**	/	***t**-zra	$\_\_\_i$	Mohand
which woman	C	see.PTCP	/	3SG.F-see.PFV		Mohand

'Which woman saw Mohand?' (Ouhalla 1993:479)

However, long distance extraction of a subject from an embedded clause requires full agreement on the verb in the source clause, as shown in (413); the verb in such a clause may not take the participle form.

(413) *Tarifit: anti-agreement is blocked by long distance extraction*

man tamghart$_i$	ay	nna-n	qa	**t**-zra	$\_\_\_i$	Mohand
which woman	C	say.PFV-3PL	C	3SG.F-see.PFV		Mohand

'Which woman did they say saw Mohand?' (Ouhalla 1993:480)

The ungrammaticality of anti-agreement in the embedded clause is unexpected given the theory of the effect that I have developed. This is because the syntax of Agree in cases of both local and long distance extraction should be uniform. If the presence of a certain Ā-feature triggers anti-agreement in case of local extraction, the current theory predicts that that Ā-feature should always trigger the effect.[1] Consider the abstract representation of the two clauses in (414).

(414) *Agree is identical in local and long extraction*

a. *Local extraction (= example 412)*

[$_{\text{CP}}$ ___ C … [$_{\text{AspP}}$ Asp$_{[\text{u}\varphi]}$ [$_{v\text{P}}$ DP$_{[\varphi,\ \bar{\text{A}}]}$ v …]]]

φ+Ā

b. *Long extraction (= example 413)*

[$_{\text{CP}}$ ___ C … [$_{\text{CP}}$ ___ C … [$_{\text{AspP}}$ Asp$_{[\text{u}\varphi]}$ [$_{v\text{P}}$ DP$_{[\varphi,\ \bar{\text{A}}]}$ v …]]]]

φ+Ā

From the point of view of Agree, the relationship between the subject DP and the φ-probe on Asp in (414a) is identical to the relationship between those items in (414b). In both cases, the Asp head in the clause where the Ā-moved DP originates Agrees with that DP and copies back both [φ] and [Ā]. If anti-agreement occurs in (414a), then it should also occur in (414b).

1. Furthermore, this prediction is independent of whether long movement is successive cyclic or not, as the calculus of agreement will be the same in the source clause either way.

The unexpected lack of anti-agreement in (413) is not just a problem for the morphological account of the effect. In fact, I am aware of no account of anti-agreement from which the contrast in between (412) and (413) falls out without any additional assumptions. Assuming that long distance movement proceeds successive cyclically, in a series of smaller, more local steps, Ā-movement out of the embedded clause should be syntactically identical to local Ā-movement in a matrix clause. Any theoretical principle that derives anti-agreement with reference to a constraint on local movement will therefore also predict anti-agreement to arise in (413), contrary to fact.

Under the morphological theory of impoverishment, there are two ways to analyze the lack of φ-impoverishment. First, it could be the case that the probe in question has agreed with an Ā-feature, but there is no impoverishment rule whose structural description is met. This is the case in Mexican Spanish.[2] The other option is that there is in fact no agreement with an Ā-feature in the first place, precluding any impoverishment rule triggered by such a feature from applying. I suggest that the latter is the case in Tarifit, and that the embedded subject position is occupied by a null resumptive pronoun, which bears only [φ]. Further, I argue that there no movement occurs out of the embedded clause. That is, the structure of (413) is actually that in (415).

(415) *Embedded Asp agrees with null resumptive pronoun*

$[_{\text{CP}}\ \text{DP}^{i}_{[\varphi,\,\bar{\text{A}}]}\ \text{C}\ \ldots\ [_{\text{CP}}\ \text{C}\ \ldots\ [_{\text{AspP}}\ \underbrace{\text{Asp}_{[\text{u}\varphi]}\ [_{v\text{P}}\ \textit{pro}^{i}_{[\varphi]}}_{\varphi}\ v\ \ldots\ ]]]]$

Under this account, the *wh*-phrase in (413) does not actually move out of the embedded clause, but instead binds the resumptive pronoun in the embedded clause, and full agreement in the embedded clause is the result of regular φ-agreement with a null subject pronoun which bears φ-features but no Ā-feature.

All Berber languages for which long distance Ā-movement has been discussed exhibit the same contrast: local subject Ā-movement triggers anti-agreement, whereas long distance subject Ā-movement does not. Support for the presence of a resumptive pronoun in long distance extraction comes from several sources. Here, I will discuss evidence from Kabyle, another Berber language.

Like Tarifit, Kabyle has anti-agreement triggered by local subject extraction, as shown in (416). Long distance subject extraction requires full agreement, as shown in (417).

(416) *Kabyle: local extraction requires anti-agreement*

Anita	tameṭṭut$_i$	i	✓i-wala-n	/	*t-wala	t_i	Muḥand?
which	woman	C	3SG.M-see-PTCP	/	3SG.F-see.PFV		Mohand

'Which woman saw Mohand?' (Mihuc 2017:5)

2. See chapter 3, section 3.7 for discussion of the Spanish data.

(417) *Kabyle: long extraction requires full agreement*

tameṭṭut$_i$=nni [$_{CP}$ i y-enna [$_{CP}$ *i-wala-n / ✓t-wala t_i
woman=DEM C 3SG.M-say.PFV 3SG.M-see-PTCP / 3SG.F-see.PFV
ɛumar]]
Omar

'the woman that he said saw Omar' (Mihuc 2017:9)

Mihuc (2017) shows that there is good reason to believe that there is a null resumptive pronoun in the embedded clause in (417). The first piece of evidence comes from the fact that subjects may be (apparently) extracted out of islands. This is shown for a *wh*-island in (418a) and for a relative clause island in (418b).

(418) *Kabyle: apparent extraction out of islands*

a. Wh-*island*

Anita taqcict$_i$ i t-ettu-ḍ [$_{CP}$ anida t-ettidir —$_i$]?
which woman C 2-forget.PFV-2 where 3SG.F-live

'Which girl have you forgotten where she lives?' (Mihuc 2017:12)

b. *Relative clause island*

Anita taqcict$_i$ i t-wala-ḍ [$_{DP}$ adlis$_k$ [$_{CP}$ i t-uɣ —$_i$ —$_k$]]?
which woman C 2-see.PFV-2 book C 3SG.F-buy

'Which girl did you see the book that she bought?' (Mihuc 2017:12)

Furthermore, the extracted subjects in (418) may be resumed by an overt pronoun, as shown in (419):

(419) *Kabyle: resumption in islands*

a. Wh-*island*

Anita taqcict$_i$ i t-ettu-ḍ [$_{CP}$ anida t-ettidir $\boxed{\textbf{nettat}_i}$]?
which woman C 2-forget.PFV-2 where 3SG.F-live 3SG.F

'Which girl have you forgotten where she lives?' (Mihuc 2017:12)

b. *Relative clause island*

*Anita taqcict$_i$ i t-wala-ḍ [$_{DP}$ adlis$_k$ [$_{CP}$ i t-uɣ $\boxed{\textbf{nettat}_i}$ —$_k$
which woman C 2-see.PFV-2 book C 3SG.F-buy 3SG.F
]]?

'Which girl did you see the book that she bought?' (Mihuc 2017:12)

Overt resumption is impossible in local movement contexts, as shown in (420).

(420) *Kabyle: no resumption in local movement*

*Aniwa$_i$ i i-wala-n / i-wala **netta**$_i$ izimer?
who C 3SG.M-see-PTCP / 3SG.M-see 3SG.M sheep
Intended: 'Who saw the sheep?' (Mihuc 2017:13)

Presence of a resumptive with local extraction is ungrammatical regardless of whether the verb shows anti-agreement (*i-wala-mn*) or full agreement (*i-wala*).

Mihuc goes on to show that apparent long distance extraction out of embedded clauses can in fact make use of the resumptive strategy used for islands in (419). Compare (417), above, with (421).

(421) *Kabyle: resumptive pronoun in embedded clause*

tameṭṭut$_i$=nni [$_{CP}$ i y-enna [$_{CP}$ *iwalan / t-wala **nettat**$_i$
woman=DEM C 3SG.M-say.PFV see.PTCP / 3SG.F-see.PFV 3SG.F
ɛumar]]
Omar
'the woman that he said she saw Omar' (Mihuc 2017:14)

Kabyle, and other Berber languages, allow for subject *pro*-drop, and therefore data like those of (421) support the analysis of apparent long distance extraction like (417) in terms of a null resumptive pronoun. The apparent gap is in fact a *pro*-dropped subject (that is, a null *pro*). There is full agreement in the source clause because the Asp head in that clause agrees with the resumptive pronoun which lacks Ā-features.

Although I do not have examples with an overt resumptive pronoun for Tarifit, Shlonsky (2014) notes that subject extraction from *wh*-islands is possible. As shown in (422), such apparent movement requires full agreement.

(422) *Tarifit: apparent extraction out of* wh-*island*

man tafruxt$_i$ ay t-ttu-t [$_{CP}$ man t-zdegh —$_i$]?
which woman C$_{FOC}$ 2-forgot-2PL where 3SG.F-live
'Which girl have you forgotten where she lives?' (Shlonsky 2014:75)

Given that movement out of a *wh*-island should be blocked, examples like (422) provide evidence for a resumptive strategy for Ā-dependencies terminating in an island in Tarifit.

The evidence just discussed shows that Kabyle and Tarifit utilize a (null) resumptive strategy for constructing Ā-dependencies into an embedded clause, whether that clause is an island or an embedded declarative, leading to full agreement in the embedded clause. Two questions are raised by this analysis. First, why is the resumptive strategy not available in cases of local subject Ā-movement? Second, why are resumptives required when the Ā-dependency terminates in an embedded declarative, given that these clauses are generally transparent for Ā-movement crosslinguistically?

The lack of resumption with local subject extraction can be understood as an instance of the *Highest Subject Restriction* (henceforth HSR). As observed by McCloskey (1990), in languages using resumption in relative clauses, a resumptive pronoun is typically banned in the highest subject position; instead, a gap is required.[3] Assuming that Berber languages are also sensitive to the HSR, this explains the unavailability of resumptive pronouns in local extraction contexts.

This leaves the questions as to why a resumptive pronoun is required in declarative embedded clauses. In at least some languages that obey the HSR, a resumptive pronoun can alternate with a gap in embedded subject positions. This is the case in Irish, as shown in (423).

(423) *Gap vs. resumption in Irish*

a. *Local subject resumptive*

*an	fear$_i$	a	raibh	sé$_i$	breoite
the	man	aN	was	he	ill

'the man that (he) was ill' (McCloskey 2002:201)

b. *Embedded subject gap*

an	t-ainm$_i$	[$_{CP}$	a	hinnseadh	dúinn	[$_{CP}$	a	bhí	$\boxed{—_i}$	ar	an	áit]]
the	name		aL	was-told	to-us		aL	was		on	the	place

'the name that we were told was on the place' (McCloskey 2002:190)

c. *Embedded subject resumptive*

an	fear$_i$	[$_{CP}$	a-r	shíl	muid	[$_{CP}$	go	raibh	$\boxed{\text{sé}_i}$	breoite]]
the	man		aN-PST	thought	we		go	was	he	ill

'the man that we thought was ill' (McCloskey 2002:201)

Example (423a) shows that a resumptive pronoun may not occupy the highest subject position in Irish. The situation is different in embedded clauses—both (423b), with a gap, and (423b), with a resumptive pronoun, are grammatical.

Given that languages like Irish make both options available in embedded clauses, we must ask why this is not the case in Kabyle, where only the resumptive strategy is avail-

3. Some languages that obey this constraint are Irish, as shown in (423); Palestinian Arabic (Shlonsky 1992, 2002); Bulgarian (Krapova 2010); Czech (Toman 1997); Hausa (Crysmann 2012); Hebrew (Shlonsky 1992); Polish (Lavine 2003); Swedish (Engdahl 1985); Tuki (Biloa 1990); Ukrainian (Lavine 2003); and Welsh (Willis 2000, 2011).

able. A important piece of evidence towards answering this question is the difference in complementizer that heads the embedded clauses in (423b)–(423c). When the embedded clause contains a gap, the complementizer is *aL*, the C head found with Ā-movement in Irish.[4] On the other hand, when there is a resumptive in the subject position of the embedded clause, the complementizer is *go*, the normal declarative C. Crucially, as shown in McCloskey (2002), for a given complementizer, there is a single choice of gap or resumptive in the embedded clause. In other words, *aL* is always paired with a gap, while *go* is always paired with a resumptive.

I suggest complementizer choice also plays a key role in determining which strategy of Ā-dependency is available in embedded clauses in Berber. Consider again the example of apparent long extraction out of an embedded declarative in Tarifit in (424), here represented with a null pronoun in the embedded clause.

(424) *Tarifit: apparent extraction out of declarative complement*

man	tamghart$_i$	[$_{CP}$	$\boxed{\textbf{ay}}$	nna-n	[$_{CP}$	$\boxed{\textbf{qa}}$	t-zra	*pro*$_i$
which	woman		C$_{FOC}$	say.PFV-3PL		C	3SG.F-see.PFV	3SG.F

Mohand]]
Mohand

'Which woman did they say saw Mohand?' (Ouhalla 1993:480)

Crucially, in (424), there are two different complementizers. The matrix clause is headed by the complementizer *ay*, which occurs in the presence of Ā-movement in *wh*-questions and clefts, while the embedded clause is headed by the complementizer *qa*, which is the normal declarative C in the language.[5] I argue that the presence of declarative *qa* in the embedded clause is what requires resumption in (424). The complementizer *qa* simply does not allow Ā-movement through its specifier, and rendering the embedded clause an island for extraction. This forces the appearance of a resumptive pronoun, and consequently, full agreement on the embedded verb.

The difference between Irish and Tarifit, then, is the availability of different complementizers in embedded clauses. While Irish makes available a C that allows Ā-movement to its specifier, thus making movement out of the embedded clause available as well, Tarifit does not; only *qa* is available, and therefore, only resumption is available for long distance dependencies.

Before moving on, a note is in order on the nature of the relationship between the apparently extracted DP in the matrix Spec-CP in (424) and the null resumptive pronoun

4. See McCloskey (2002) for discussion of the Irish complementizer system and its sensitivity to different kinds of Ā-dependencies. I discuss complementizer alternations in Irish in more detail in section 6.4.

5. Long relativization shows the same pattern, with a dedicated relative complementizer in the matrix clause, and a declarative complementizer in the embedded clause.

which occupies the apparent gap in the embedded clause. While this relationship must be some kind of binding, in order for the resumptive pronoun to act as a variable bound by the Ā-operator in the matrix clause, there must be some difference between this binding and the type of binding discussed for the bound pronouns in Abaza that trigger anti-agreement that were discussed in the previous chapter. There, I proposed that bound pronouns which trigger anti-agreement are merged as minimal pronouns, and receive features from the λ-introducing head that binds them via Feature Transmission (Kratzer 2009). I further argued that Feature Transmission is capable of copying Ā-features to the minimal pronoun, as shown in (425).

(425) *Feature Transmission of [φ, Ā] to minimal pronoun*

a. *Minimal pronoun enters derivation without features*

AGREE

$$[_{\text{HP}}\ \text{DP}^{i}_{[\varphi_1,\,\bar{\text{A}}_1]}\ \ \text{H}^{\lambda i}_{[\varphi_1,\,\bar{\text{A}}_1]}\ \ [\ \dots\ \textit{pro}^{i}_{[\ \ ]}\ \dots\ ]]$$

b. *Minimal pronoun receives [Ā] and [φ] from their binder*

AGREE

$$[_{\text{HP}}\ \text{DP}^{i}_{[\varphi_1,\,\bar{\text{A}}_1]}\ \ \text{H}^{\lambda i}_{[\varphi_1,\,\bar{\text{A}}_1]}\ \ [\ \dots\ \textit{pro}^{i}_{[\varphi_1,\,\bar{\text{A}}_1]}\ \dots\ ]]$$

BINDING

It is the presence of an Ā-feature on the formerly minimal pronoun that triggers anti-agreement on heads that agree with the bound pronoun.

Because the resumptive pronoun involved in (424) does not trigger anti-agreement, the structure in (425) cannot be the way the relationship between the resumptive and the matrix Ā-operator is mediated. Here, I suggest that this is because the resumptive pronoun in (424) is merged not as a minimal pronoun but as a pronoun with a full set of φ-features. I further suggest that this is required because the complementizer *qa* does not introduce a λ-binder. This is reasonable under the assumption that *qa* simply does not support Ā-dependencies into the clause it heads. Without a λ-binder on *qa*, a minimal pronoun merged in the embedded clause would not receive any features under Feature Transmission. I argue that the binding relationship between the non-minimal resumptive pronoun and the matrix Ā-operator is established at LF, and that no feature transmission occurs as part of this operation. This is shown in (426).[6]

6. Kratzer argues that Feature Transmission is limited to local binding relations. Thus, we should not expect the binding relation in (426) to support Feature Transmission of an Ā-feature to the resumptive pronoun in the embedded clause.

(426) *No Feature Transmission to pronoun with [φ]*

a. *Pronoun enters derivation with [φ]*

$[_{\text{CP}}\ \text{DP}^{i}_{[\varphi_1,\ \bar{\text{A}}_1]}\ \text{C}\ \dots\ [_{\text{CP}}\ \text{C}_{\text{DECL}}\ [\ \dots\ \textit{pro}^{i}_{[\varphi_1]}\ \dots\ ]]$

b. *Binding between matrix Ā-operator and pronoun*

$[_{\text{CP}}\ \text{DP}^{i}_{[\varphi_1,\ \bar{\text{A}}_1]}\ \text{C}\ \dots\ [_{\text{CP}}\ \text{C}_{\text{DECL}}\ [\ \dots\ \textit{pro}^{i}_{[\varphi_1]}\ \dots\ ]]$

BINDING

Thus the difference between the bound pronouns that trigger anti-agreement in Abaza and the resumptive pronouns in Tarifit and Kabyle that control full agreement comes down to whether the pronoun in question is merged with a set of φ-features or not. The resumptive pronoun is merged with a full set of φ-features, and therefore does not receive the Ā-feature of its antecedent under binding at LF. On the other hand, the bound pronouns in Abaza that are merged as minimal pronouns require a syntactic dependency to be established between them and the head that binds them, and this syntactic dependency leads to the transmittal of an Ā-feature to the pronoun, triggering anti-agreement.

Of the 63 languages included in the crosslinguistic survey, only the Berber languages and Turkish exhibit lack of anti-agreement in (apparent) long distance extraction contexts (Ouhalla 1993). An example of the effect in Turkish is shown in (427).

(427) *Local vs. long distance relativization in Turkish*

a. *Local relativization*

[CP —$_i$	geç	gel-en(*-**ler**$_i$)	]	hocalar$_i$
	late	come-SBJ.PTCP-PL		lecturers

'the lecturers who came late'

b. *Long distance relativization*

[CP [CP —$_i$	geç	gel-dik-*(**leri**$_i$)-ni	]	söyle-diğ-in	]
	late	come-NON.SBJ.PTCP-PL-ACC		say-NON.SBJ.PTCP-2PL	

hocalar$_i$
lecturers

'the lecturers who came late'

Example (427a) show local subject relativization. The extracted subject, *hocalar* 'lecturers', cannot control number agreement inside the relative clause and the verb takes the subject participle suffix *-en*, which is only found in cases of subject relativization. Example (427a) shows long distance subject relativization. In this case, the verb in the embedded source clause must take number agreement and the verb appears in the so called non-subject participle suffix *-dik*, which occurs elsewhere in cases of non-subject relativization. Further work is needed to determine if lack of anti-agreement in Turkish results from resumption as well, or if something else is at play.

Besides apparent long distance Ā-extraction blocking anti-agreement, it has been reported in the literature that in some languages, the presence of clausal negation in the clause from which the agreeing argument is moved may also may have an effect on the presence of anti-agreement. For example, Ouhalla (1993) shows that for Tarifit, the presence of clausal negation makes anti-agreement optional. As shown in (428), local extraction of the subject of a negated clause may trigger the participle or full agreement.

(428) *Tarifit: anti-agreement optional with negation*

tamghart$_i$	nni	ur	✓**yssnn**	/	✓**t**-ssn	$\_\_{i}$	Mohand
which woman	C$_{\text{REL}}$	NEG	know.PTCP	/	3SG.F-know		Mohand

'the woman who does not know Mohand' (Ouhalla 1993:479)

Like the loss of anti-agreement in long distance contexts discussed above, the sudden *optionality* of anti-agreement in (428) is surprising. In the clausal negation context, agreement with a subject with an Ā-feature should proceed in the same way it does in a non-negated clause. Thus, the Asp head in (428) should copy back [φ] and [Ā], and impoverishment should result in anti-agreement.

Although Turkish patterns with Tarifit in the loss of anti-agreement in long distance contexts, Ouhalla (1993) notes that it differs from Tarifit by still requiring anti-agreement in negated clauses, as shown in (429).

(429) *Turkish: negation does not block anti-agreement*

a.

[$_{\text{CP}}$	$\_\_{i}$	hoca-yi	gör-me-yen	]	öğrenciler
		lecturer-ACC	see-NEG-SBJ.PTCP		students

'the students who did not see the lecturer' (Ouhalla 1993:500)

b.

*[$_{\text{CP}}$	$\_\_{i}$	hoca-yi	gör-me-yen-**ler**	]	öğrenciler
		lecturer-ACC	see-NEG-SBJ.PTCP-PL		students

'the students who did not see the lecturer' (Ouhalla 1993:500)

Example (429a) is a negated subject relative clause. The head of the relative clause, *öğrenciler* 'students' is plural, yet the verb in the relative clause cannot take the plural agreement suffix *-ler*. Additionally, the verb takes the subject participle suffix form *-yen*. As (429b) shows, absence of *-ler* is obligatory; its presence leads to ungrammaticality.

Ouhalla points out that there is a crucial difference in the order of subject agreement and negation in Tarifit and Turkish. In Tarifit, negation is higher than the head that hosts agreement; it appears farther away from the verb. In Turkish, on the other hand, negation appears closer to the verb than agreement does. Assuming the mirror principle, negation is therefore lower than the head hosting agreement in Turkish (Baker 1985). Ouhalla (1993) shows that whether or not negation obviates anti-agreement correlates with the hierarchical arrangement between negation and agreement. The generalization is provided in (430), where Agr stands for the head hosting agreement, be that a dedicated agreement projection, or another head hosting a φ-probe.

(430) Ouhalla's Generalization (my formulation)

Anti-agreement is affected by negation in languages with the head order Neg ≻ Agr ≻ V but not in languages with the head order Agr ≻ Neg ≻ V, where the symbol ≻ indicates c-command.

There are 18 languages in the crosslinguistic survey for which I have data or information relevant to the interaction of clausal negation and anti-agreement. I have found no counterexamples to the generalization in (430) in those 18 languages. The Arawak language Matsigenka (ISO: `mcb`, Peru) is an example of a language with the order Neg ≻ Agr ≻ V in which anti-agreement is blocked under clausal negation.[7]

(431) *Matsigenka: negation blocks anti-agreement*

a. *Declarative clause, no extraction → no subject agreement*

i-oga=ri	surari$_i$
3M-DEM.MED=CNTR	man

$\boxed{\mathbf{i}_i}$-tsamai-t-ako-t-ak-i-ro
3M.SBJ-cultivate-EP-APPL-EP-PFV-REAL.ACT-3F.OBJ

sekatsi
manioc

'The man cultivated manioc' (Vargas Pereira et al 2013:1167)

b. *Subject relative clause, positive → no subject agreement*

i-oga=ri	[	magempi-t-i-ri=rira	i-itane	]
3M-DEM.MED=CNTR		joke.with-EP-REAL.ACT-3M.OBJ=REL	3M.POSS-relative	

'those who joke around with their relatives' (Vargas Pereira et al 2013:66)

7. In (431), I follow glossing conventions provided by Zachary O'Hagan (p.c.). English translations for these examples were also provided by O'Hagan.

c. *Subject relative clause, negative → subject agreement*

i-oga=ri$_i$	[**te** =rira	**i**$_i$ -n-kematsa-t-ant-e]
3M-DEM.MED=CNTR	NEG.REAL=REL	3M.SBJ-IRR-obey-EP-ANTIP-IRR

'he who does not obey' (Vargas Pereira et al 2013:152)

Example (431a) gives a baseline declarative clause with no negation or extraction. We see that the verb takes 3rd person masculine subject agreement prefix *i-* to crossreference the features of *iogari sukari* 'the man'. When the subject is extracted from a non-negated clause, as is the case in (431b), this subject agreement prefix disappears. That effect is reversed in (431c), where the relative clause is negated with the negative marker *te*. In that example, the subject agreement prefix *i-* obligatorily resurfaces.[8]

An example of a language with the order Agr > Neg > V, where anti-agreement is unaffected by clausal negation comes from Seereer. First, recall that some subject agreement is suffixal in Seereer. When this agreement occurs, it appears to the right of the negative suffix *-eer*, as shown in (432).

(432) *Seereer: negation occurs between verb stem and agreement*

ret-**eer**-um
go-NEG-1SG
'I didn't go.'

Assuming that the order of affixes in the morphology mirrors the order of the heads in the syntax that those affixes spell out (Baker 1985), I take the relative order of negation and subject agreement in (432) to indicate that the head Neg appears between the verb and the head that hosts subject agreement, Fin, in Seereer. With this in mind, consider the negated subject question shown in (433).

(433) *Seereer: negation does not block anti-agreement*

an	(*a-)ret-**eer**-u?
who	(*3-)go-NEG-FOC

'Who didn't go?'

In the above example, agreement with an Ā-subject is ungrammatical, just as it is in affirmative clauses. Thus, anti-agreement persists in negated clauses in Seereer.

A more striking confirmation of Ouhalla's Generalization comes from Lubukusu, which has two negative prefixes *se-* and *kha-*. Crucially, these prefixes differ in two ways. First,

8. For more detailed discussion of subject extraction and anti-agreement in Caquinte, a language closely related to Matsigenka, see Baier and O'Hagan (2018).

they have different distributions—*se-* negates declaratives, while *kha-* is used to negate interrogatives, relative clauses, and imperatives, as shown in (434).

(434) *Two markers of negation in Lubukusu*

a. *Negated declarative* → se-

Peter	**se**-a-le-icha	bwangu	ta.
CL1.Peter	NEG-CL1.SBJ-FUT-come	quickly	NEG

‘Peter will not come quickly.’ (Diercks 2010:190)

b. *Negated relative clause* → kha-

Peter	a-kula	e-ngokho	[$_{CP}$	ni-yo	maayi
CL1.Peter	CL1.SBJ-buy	CL9.chicken		C-CL9.C.FV	CL1.mother

a-**kha**-a-katile	o-mu-keni	ta	]
CL1.SBJ-NEG-PST-slaughter	1-1-guest	NEG	

‘Peter bought the chicken which mother did not slaughter for the guest.’ (Diercks 2010:190)

In clauses with subject extraction, the *kha-* form of negation is usually used. As expected from Ouhalla’s generalization, anti-agreement is unaffected. As shown in (435), the verb still takes a C-agreement prefix and anti-agreement occurs on both that prefix and the normal subject agreement prefix. This is seen for extraction out of an embedded clause in (435).

(435) *Ā-subject* + kha- → *anti-agreement*

naanu	ni-ye	ba-manyile	[$_{CP}$ —$_i$	o-o-**kha**-la-soma
CL1.who	PRED-CL1	CL2.SBJ-know		CL1.C-CL1.AA-NEG-FUT-read

siitabu	ta	]
CL7.book	NEG	

‘Who do you know will not read the book?’ (Diercks 2010:190)

However, there is an alternative strategy for apparent long distance extraction in Lubukusu. The source clause my be preceded by an embedding complementizer, in which case the verb does not take a C-agreement prefix. When such a source clause is negated, the verb takes the negative prefix *se-*, which precedes subject agreement. As shown in (436), there is no anti-agreement in this construction.[9]

9. Diercks (2010) argues that these constructions do not actually involve Ā-movement, but instead have a null resumptive pronoun in the gap position. This is in line with my analysis of local/long distance

(436) *Ā-subject* + se- ⟶ *full agreement*

naanu ni-ye ba-manyile $[_{CP}$ bali $\_\_\__i$ $\boxed{\textbf{se}}$-**a**-la-soma
CL1.who PRED-CL1 CL1.SBJ-know CL2.C NEG-CL1.SBJ-FUT-read
siitabu ta]
CL7.book NEG
'Who do you know will not read the book?' (Diercks 2010:190)

Thus, Lubukusu confirms Ouhalla's Generalization, with both patterns (Agr > Neg and Neg > Agr) being instantiated in the same language. When negation occurs between the verb and agreement, anti-agreement is unaffected, but when negation occurs higher than agreement, anti-agreement is blocked.

While the asymmetry between local and long distance extraction with regards to anti-agreement in languages like Tarifit and Turkish is not predicted by any account of anti-agreement, including mine, at least two existing syntactic approaches to anti-agreement are able to derive Ouhalla's generalization without additional stipulation. Specifically, these are Phillips's (1997) account of anti-agreement, which connects anti-agreement and verb raising, and the anti-locality approach developed by Erlewine's (2016). Here, I will sketch how Erlewine's account can derive Ouhalla's generalization.[10]

Recall from chapter 1 that Erlewine pursues the idea that anti-agreement arises from the Spec-to-Spec anti-locality constraint in (437).

(437) *Spec-to-Spec anti-locality (SSAL)* (Erlewine 2016:431)
Ā-movement of a phrase from the Specifier of XP must cross a maximal projection other than XP.

This constraint rules out movement of the type in (438), but allows movement of the type in (439).

(438) *Movement crosses only XP, violate (437)*
$[_{YP}\ \alpha\ Y\ [_{XP}\ t_\alpha\ X \ldots]]$

(439) *Movement crosses XP and YP, does not violate (437)*
$[_{ZP}\ \alpha\ Z\ [_{YP}\ Y\ [_{XP}\ t_\alpha\ X \ldots]]]$

In terms of Ouhalla's generalization, X in (438)–(439) is the Agr. In languages where

alternations in Berber. See Diercks (2010) for more data and discussion.
10. See Phillips (1997) for detailed discussion of the way his account derives the generalization.

negation occurs below Agr, extraction from Spec-AgrP will still be illicit—nothing will intervene between Spec-AgrP and the landing site of Ā-movement, as shown in (440).

(440) *Agr ≻ Neg ⟶ Ā-movement still violates (437)*

$[_{\mathrm{CP}}\ \alpha\ \mathrm{C}\ [_{\mathrm{AgrP}}\ t_{\alpha}\ \mathrm{Agr}\ \ldots\ [_{\mathrm{NegP}}\ \mathrm{Neg}\ \ldots\ ]]]$

✗

On the other hand, in languages where agreement occurs below negation, extraction from Spec-AgrP is predicted to be possible—in this case, negation intervenes between Spec-AgrP and the landing site of Ā-movement, and therefore such movement does not violate Spec-to-Spec anti-locality. This is schematized in (441).

(441) *Neg ≻ Agr ⟶ Ā-movement does not violates (437)*

$[_{\mathrm{CP}}\ \alpha\ \mathrm{C}\ [_{\mathrm{NegP}}\ \mathrm{Neg}\ [_{\mathrm{AgrP}}\ t_{\alpha}\ \mathrm{Agr}\ \ldots\ ]]]$

✓

In this way, the SSAL account predicts that the addition of clausal negation in a Neg ≻ Agr will obviate the need for anti-agreement. This is because extraction from the specifier required to trigger agreement is available for the launching site of Ā-movement.

Unlike Erlewine's (2016) account, the present morphological theory does not predict that negation should have an effect on anti-agreement, nor does it predict the correlation between the hierarchical order of negation and agreement and the effect of negation on anti-agreement. However, it should be noted that even in languages with Neg ≻ Agr order, anti-agreement is not necessarily blocked in the context of negation. Ouhalla himself states that such a configuration only makes anti-agreement optional in Tarifit. In other Berber languages, anti-agreement remains obligatory under negation, but an alternative form of the participle may show up in negated clauses. This is the case in Kabyle. Consider the two examples in (442).

(442) *Kabyle: negation does not block anti-agreement*

a. *Normal participle*

tameṭṭut$_i$=nni	[$_{\mathrm{CP}}$	ur	**i-wala-n**	ara	—$_i$	Yidir]
woman=DEM		NEG	3SG.M-see.PFV-PTCP	NEG		Yidir

'the woman who did not see Yidir' (Mihuc 2017:6)

b. *Negative participle*

tameṭṭut$_i$=nni	[$_{\mathrm{CP}}$	ur	**n-wala**	ara	—$_i$	Yidir]
woman=DEM		NEG	PTCP-see.PFV	NEG		Yidir

'the woman who did not see Yidir' (Mihuc 2017:6)

Example (442a) shows local subject extraction out of a negated clause. Unlike Tarifit, anti-agreement is obligatory here—the verb must surface as the participle. However, there is an alternative form of the participle available, shown in (442b). Instead of having the default agreement prefix *i-*, the participle morpheme *n* surfaces as a prefix in this negative participle form. However, there is still no indexation of the φ-features of the subject.

In a survey of participle morphology in Berber languages, Drouin (1996) reports that 11 out of the 15 languages surveyed have an alternation similar to that of Kabyle. In all of these languages, participle morphology that is suffixal in affirmative clauses becomes preverbal in the context of clausal negation. Languages differ as how preverbal participle morphology is expressed. In some, like Kabyle, the participle morpheme replaces regular agreement morphology. In others, like Tadghaq, the participle morpheme cliticizes or suffixes to the negative morpheme.

What this pattern in Berber indicates is that while negation may have an effect on the morphological expression of anti-agreement, it does not necessarily universally block (or make optional) anti-agreement. This suggests that the effect that negation has on anti-agreement in Berber may be formally independent from the triggering of φ-impoverishment in an Ā-context.

While it is the case that Phillips (1997) and Erlewine (2016) are able to derive Ouhalla's generalization, other syntactic accounts of anti-agreement do not fare as well. For example, the generalization does not fall out of syntactic accounts based on constraints on movement, such as those ground in Criterial Freezing or feature strength. These accounts would need to stipulate additional mechanisms to derive Ouhalla's generalization. Thus, the ability to derive the generalization is not a general characteristic of syntactic accounts. Further work must be done on how best to derive the interaction between negation and anti-agreement, and how best to derive Ouhalla's generalization.

6.3 Anti-agreement and syntactic constraints on extraction.

In the preceding chapters, I have argued extensively against a theory of anti-agreement based on syntactic constraints on movement. Such accounts differ from the morphological theory that I have advocated in a fundamental way. Namely, in syntactic approaches to anti-agreement, loss of φ-feature agreement contrasts with a DP in Ā-contexts results from an actual lack of agreement in the syntax. In other words, agreement with a DP doesn't surface when that DP undergoes Ā-movement because that agreement never took place in the syntax.

On the other hand, in the morphological account, loss of φ-agreement occurs after the narrow syntax; the syntax of agreement with a DP is uniform across the Ā- and non-

Ā-contexts. Whether or not a DP has an Ā-feature does not itself restrict agreement with that DP. In fact, it is crucial to the account that a φ-probe that normally agrees with a DP also agrees with that DP when it is morphologically affected by an Ā-dependency targeting that DP.

This important difference means that the two theories make crucially different predictions regarding how clausal syntax should be affected by anti-agreement. Because syntactic theories of anti-agreement rely on constraints on extraction, such accounts appeal to repairs or structural alternatives that allow a DP blocked from moving to be extracted. It is these structural alternatives that result in differences in agreement. Thus, by the nature of the accounts, syntactic theories of anti-agreement predict that the clausal syntax of the Ā-context and the non-Ā-context should be non-trivially different.

This is not the case for the morphological theory advocated here. Because loss of agreement arises in the morphology, the current theory predicts that anti-agreement triggered by Ā-features on a given DP should not trigger other changes to the syntax of the clause. To be clear, this does not mean that the syntax of the clause in the Ā-context is predicted to be absolutely identical to the clause structure in the Ā-context. It only means that changes in clausal syntax should be demonstrably independent of the presence of Ā-features on the relevant DP.

To see what I mean, consider again extraction of indefinite objects in Selayarese. Recall that normally, indefinite objects do not control absolutive agreement on T; instead, the external argument controls agreement on T, as shown in (443).

(443) *Transitive verb, indefinite object*

(a)ng-alle=i$_i$	doe'	i	Baso'$_i$
INTR-take-3ABS	money	H	Baso

'Baso took (some) money.' (Finer 1997:680)

In chapter 4, I argued that this agreement pattern arises from the fact that indefinite objects in Selayarese are NPs, and therefore they do not need to be licensed via Agree with T. This leaves T available to agree with the external argument. When the object is definite, on the other hand, T agrees with it. A second φ-probe surfaces on *v* and is realized as an ergative agreement prefix on the verb, as shown in (444).

(444) *Transitive verb, definite object*

la$_i$-'alle=i$_k$	doe'-iñjo$_k$	i	Baso'$_i$
3ERG-take=3ABS	money-DEF	H	Baso

'Baso took the money.' (Finer 1997:679)

In this way, the different agreement patterns in (443)–(444) arise from the licensing requirements of the nominals in the clause.

From this point of view it is surprising, then, that when an indefinite object nominal is extracted, the latter pattern of agreement surfaces. Specifically, an ergative prefix occurs on the verb crossreferencing the external argument and there is no absolutive clitic, as shown in (445).

(445) *Focused indefinite object*

doe'	la-alle	i	Baso'
money-DEF	3ERG-take(-3ABS)	H	Baso'

'Baso took (some) MONEY .' (Béjar 1999:59)

I argued in chapter 4 that this pattern of agreement surfaces because extracted arguments must project to DP in order to host an Ā-feature that drives movement. This means that the object exceptionally requires licensing, and an ergative probe must be merged on *v* so that T can agree with the object. Because the absolutive probe undergoes φ-impoverishment when it has copied back an Ā-feature, however, no absolutive agreement appears on the surface.

The pattern of agreement in (445) is the one we expect if the object is a DP, modulo the lack of overt absolutive agreement caused by impoverishment. Although agreement between T and the object emerges because the object must be a DP bear Ā-features in order to be extracted, this instance of agreement is driven by the normal calculus of licensing in the language. That is, the object agrees with T because it is syntactically a DP, and not exclusively because it is extracted.

Furthermore, the lack of surface absolutive agreement in (445) *cannot* be understood as a failure of an object nominal to agree with T in the syntax. We know what pattern of agreement results from such a configuration in the syntax—namely, the lack of ergative agreement altogether.

In light of this discussion, the question arises as to whether *any* instances of anti-agreement can be attributed to the lack of syntactic agreement with the Ā-marked DP. I suggest that the best way to diagnose such a scenario would be one that is in a way the opposite of the Selayarese case just discussed. What we are looking for is a case where Ā-movement of a DP allows for new agreement relations to emerge in the clause where Ā-movement originates. For example, suppose that in a declarative transitive clause containing two DPs, DP_1 and DP_2, a φ-probe X may only agree with DP_1. If extraction of DP_1 results in agreement between the probe X and DP_2, we have a case where extraction of a DP creates new agreement possibilities. This suggests that extraction of DP_1 requires a different syntactic structure, one which also allows for agreement between DP_2 and the φ-probe in question, a relation that is usually unavailable.

The Tupian language Karitiâna (ISO: `ktn`, Brazil) provides an example of a language that instantiates the above scenario. Verbs in Karitiâna take one agreement affix, which indexes the subject of intransitive clauses, as shown in (446), and the object of transitive clauses, as shown in (447).

(446) *Karitiâna: agreement in intransitive clauses*

a. **y**-pyr-ahy-dn yn
1-ASSERT-drink-NFUT 1SG
'I drank.' (Storto 2014:166)

b. **a**-pyr-ahy-dn an
2-ASSERT-drink-NFUT 2SG
'You drank.' (Storto 2014:166)

c. **Ø**-pyr-ahy-dn i
3-ASSERT-drink-NFUT 3SG
'He drank.' (Storto 2014:166)

(447) *Karitiâna: agreement in transitive clauses*

a. **y**-pyr-ahoj-on yn õwã
1SG-ASSERT-laugh.at-NFUT 1SG child
'The child laughed at me.' (Storto 2014:166)

b. **a**-pyr-ahoj-on an õwã
2SG-ASSERT-laugh.at-NFUT 2SG child
'The child laughed at you.' (Storto 2014:166)

c. **Ø**-pyr-ahoj-on i õwã
3-ASSERT-laugh.at-NFUT 3SG child
'The child laughed at her.' (Storto 2014:167)

Storto (1999) argues that Karitiâna absolutive agreement realizes a φ-probe on IP (TP in this work), with absolutive arguments moving to Spec-TP. Like Selayarese, extraction of the absolutive agreement controller affects agreement, while extraction of a transitive subject does not affect agreement. When an intransitive subject is extracted, the verb is prefixed with an invariant morpheme *i*-, which Storto (1999) labels the participle (glossed here PTCP), instead of the expected agreement morpheme. This is shown in (448). When a transitive subject is extracted, verbal morphology is not affected, as shown in (449).

(448) *Karitiâna: intransitive subject extraction*
Mora-mon **i**-hyryp?
who-COP PTCP-cry
'Who cried' (Storto 1999:159)

(449) *Karitiâna: transitive subject extraction*
Morã **y**-sokõ'i?
who 1SG-tie.up
'Who tied me up?' (Storto 1999:159)

When a transitive object is extracted, however, the verb exceptionally agrees with the subject. In addition, the verb takes the prefix *ti-*, which Storto (1999) labels the object focus marker, glossed here OBJ.FOC. This pattern is shown in (450).

(450) *Karitiâna: transitive object extraction*
'Ep **aj**-**ti**-pasagngã-t ajxa
trees 2PL-OBJ.FOC-count-NFUT 2PL
''TREES, you all are counting.'' (Storto 1999:163)

In the current theory, the loss of absolutive agreement in (448) and (450) is unproblematic—like in Selayarese, an Ā-marked DP agrees with the φ-probe on T, and T subsequently undergoes full φ-impoverishment in the morphology. In this account, *i-* could be analyzed as the realization of the remaining Ā-feature on T. The switch of agreement in (450), however, is not predicted by the morphological theory of anti-agreement, and is problematic for the current analysis. If transitive subject cannot control agreement on T in clauses without object extraction, it is surprising that it is capable of doing so when the object is extracted. This is because, under the morphological theory, we must assume that the object does in fact enter an Agree relation with T.

This suggests that the clausal syntax of transitive clauses without object extraction, like those in (447), and transitive clauses with object extraction, like the one in (450), are different. At the very least, we must conclude that only the object is able to agree with the verb in (447), but in (450), both the subject and the object are able to do so. That is, we must minimally say that the syntax of agreement is different between the two clauses, and that this difference in syntax is tied to absolutive extraction.[11]

Erlewine (2016) offers an account of the Karitiâna pattern in terms of his Spec-to-Spec Anti-Locality constraint. He follows Storto's analysis that absolutive agreement controllers raise to Spec-TP. From this position, Spec-to-Spec anti-locality will block Ā-movement to Spec-CP, since Spec-TP is directly below Spec-CP. Therefore, the absolutive arguments must extract from a lower position, which blocks agreement with T. In transitive clauses, the subject is able to exceptionally agree with T because it is in T's probe's search domain.

11. A potential alternative to positing a syntactic difference between transitive clauses with an without object extraction would be to posit that the subject is always able to agree with T, but that the features of the subject are never realized unless the object has been extracted. I leave it to further work to see if this morphological alternative is viable for these data.

While I am not in a position to establish that Erlewine's Spec-to-Spec anti-locality analysis of Karitiâna is the correct syntactic analysis, it is clear that something syntactic is going on to enable agreement with a transitive subject in cases of object extraction. At the same time, aspects of the Karitiâna effect may be able to be modeled in the morphological approach. Lack of agreement with an absolutive argument is always correlated to some sort of marking beyond normal agreement in Karitiâna. In intransitive subject extraction clauses, this marking is the prefix *i-*, and in clauses with object extraction, this marker is *ti-*. This resembles Ā-exponence seen elsewhere in the survey of languages at the core of this dissertation. This suggests that agreement for Ā-features, and subsequent impoverishment, still plays a role in Karitiâna, and opens up the possibility that Ā-sensitive φ-agreement is still active even in languages where the clause structure is affected by extraction of a particular argument. That is, it may be the case that Ā-sensitive φ-agreement derives the morphological side of the pattern in Karitiâna, whereas there is some further syntactic mechanism that derives the ability for transitive subjects to agree exceptionally in object extraction clauses.

6.4 Ā-sensitive morphology beyond φ-agreement

While this work has focused on the effect of Ā-dependencies on the form of φ-agreement morphology, it is well known that such dependencies can have an affect on clausal morphology beyond φ-agreement as well. The term *wh*-agreement has been used to refer to a wide range of these phenomenon. Here, I will use the term Ā-sensitive morphology to refer to these effects.

Ā-sensitive morphology generally affects the form of complementizers, verbs or verbal projections like independent TAM markers. Effects that manifest in the complementizer system include, but are not limited to, complementizer selection in Irish (McCloskey 1990, 2002), Haitian Creole (Takahashi and Hulsey 2009), and Nez Perce (Deal 2016a); operator-C agreement in Chamorro (Chung and Georgopoulos 1988; Chung 1994, 1998); and complementizer agreement in Bantu languages (such as Lubukusu (Diercks 2010) and Kinande (Schneider-Zioga 1995, 2007)) and Wolof (Martinović 2017). Effects that manifest on verbs or independent TAM inflection include, but are not limited to, Kikuyu downstep deletion (Clements 1984); voice marker deletion in Indonesian/Malay (Saddy 1991; Cole and Hermon 1998); *no*-insertion in Duala (Epée 1976; Zentz 2014); Seereer *-u* marking (Baier 2018); affirmative suffix deletion in Moore (Haik 1990); mood selection in Palauan (Chung and Georgopoulos 1988; Georgopoulos 1985, 1991); and relative TAM markers in Hausa (Green 1997; Green and Reintges 2015).

These phenomena are often analyzed as the surface result of agreement between some clausal projection and a phrase bearing an Ā-feature. A major advantage of the morphological theory of anti-agreement developed in this dissertation is that it brings the analysis of the effects that Ā-dependencies have on φ-agreement into alignment with this broader tradition of analysis of other Ā-sensitive morphology. In fact, the existence of Ā-sensitivity for other heads predicts that φ-probes should be also Ā-sensitive, as they always are in my theory. In this section, I briefly discuss some of other instances of Ā-sensitive morphology to situate anti-agreement within the typology of these effects.

Unlike anti-agreement, which is triggered by the presence of an Ā-feature on a specific DP, many of the Ā-sensitive morphological effects listed in the preceding paragraphs are triggered by any Ā-feature present anywhere in the clause. This is the case in Irish, where movement of an Ā-marked XP to Spec-CP triggers the appearance of the complementizer *aL* (realized phonetically as /a/ + lenition on the following word). As shown in (451), *aL* is present regardless of whether the subject, (451a), object, (451b), or adjunct (451c), moves.

(451) *Irish: complementizer* aL *accompanies Ā-movement*

a. *Subject relative clause*

an	ghirseach$_i$	a	dól	—$_i$	an	t-uisce
the	girl	aL	drank		the	water

‘the girl that drank the water’ (McCloskey 2001:79)

b. *Object relative clause*

an	ghirseach$_i$	a	ghoid	na	síogaí	—$_i$
the	girl	aL	stole	the	fairies	

‘the girl that the fairies stole away’ (McCloskey 2001:67)

c. *Adjunct* wh-*question clause*

Cá	h-uair	a	thiocfas	tú	’na bhaile?
the	girl	aL	come.FUT	you	home

‘When will you come home?’ (McCloskey 2001:72)

A different complementizer, namely *go*, is found in embedded declarative clauses where there is no Ā-movement, as shown in (452).[12]

(452) *Declarative embedded clause*

Deir	siad	[$_{CP}$	gur	ghoid	na	síogaí	í	]
say	they		C.PST	stole	the	fairies	her	

‘They say the fairies stole her’ (McCloskey 2001:79)

The presence of a dedicated complementizer with Ā-movement in Irish is one of the most well known instances of Ā-sensitive morphology. The complementizer *aL* is generally

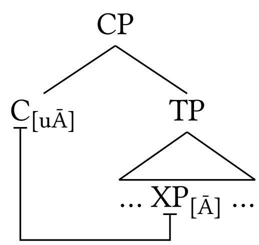
12. The complementizer *go* has the form *gur* in the past tense (McCloskey 2001).

argued to be the spell out of the complementizer that triggers Ā-movement. That is, *aL* spells out a C that bears an Ā-probe, as shown in (453).

(453) *Vocabulary item for aL*
aL ↔ [uĀ, C]

This analysis not only straightforwardly derives the occurrence of complementizer in Ā-contexts that is morphologically distinct from the declarative complementizer *go*, but also derives the fact that any Ā-movement to Spec-CP triggers *aL*, as the morphological form coincides with the probing that triggers that movement. That is, the form *aL* surfaces in the structure shown in (454).

(454) *Syntactic context of* aL



We have already seen in the preceding chapters that movement to Spec-CP may be accompanied by φ-agreement. This is the case in Lubukusu, where both subject and object extraction require the presence of an agreeing complementizer. With subject extraction, this agreeing complementizer is realized as a prefix on the verb to the left of the normal agreement prefix, as shown in (455a). When the object is extracted, the agreeing complementizer surfaces to the left of the subject as a separate word, as shown in (455b).

(455) *Lubukusu: agreeing complementizer accompanies Ā-movement*

a. *Subject relative clause*

sisiindu	**si**-**sy**-a-kwa
cl7.thing	cl7.C-cl7.sbj-pst-fall

'the thing which fell' (Diercks 2010:117)

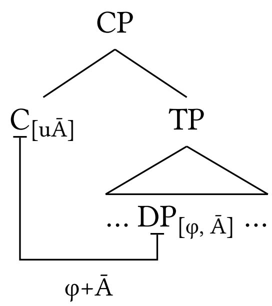
b. *Object relative clause*

kamatunda	*(**ni-ko**)	babaandu	baakula	likoloba
cl6.fruit	C-cl6	cl2.person	cl2.sbj-pst-buy	yesterday

'the fruit that people bought yesterday' (Diercks 2010:85)

Given the theory of agreement that I have assumed here, the Irish and Lubukusu patterns are derivationally identical. In both languages, an Ā-probe on C searches for an Ā-feature and agrees with it. The probe interacts with [φ] in addition to [Ā], as shown in (456).

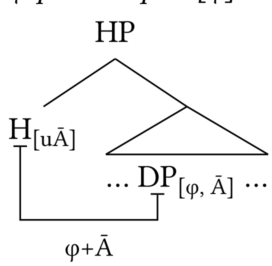
(456) *Ā-complementizer copies [φ] and [Ā]*



In this account, the difference between Irish and Lubukusu is a difference in the features that are spelled out when the agreement relation in (456) has occurred. In Irish, only the Ā-feature is spelled out; in Lubukusu, the Ā-feature and (a subset) of the φ-features are also spelled out.

The configuration in (456) is the dual of the configuration that leads to anti-agreement, shown here in (457).

(457) *φ-probe copies [φ] and [Ā]*



In cases of anti-agreement, a φ-probe copies back [Ā] in addition to the φ-features that satisfying it. In cases of extraction marking on complementizers, the Ā-probe copies back φ-features in addition to the Ā-feature that satisfies it. In both cases, there is crosslinguistic variation in whether or not the additional features are spelled out in the morphology.

The type of general Ā-sensitive morphology that is triggered by any instance of Ā-movement in a clause may also be found on verbs or independent inflectional elements. An example of the latter comes from the Chadic language Hausa (ISO: hau, Niger and Nigeria). In Hausa, verbal inflectional categories like subject agreement and aspect are marked on a separate word that comes between an overt DP subject and the verb (referred to as the *inflectional particle* here).[13] Certain forms of the inflectional particle show

13. Newman (2000) refers to this inflectional element as the *person-aspect complex*.

fusional morphology, while other forms can be segmented into a TAM marker and subject-agreement morpheme, which marks person, number, and gender. An example of such a segmentable inflectional element is shown in (458).

(458) *Hausa inflectional particle*

yārṑ	$\boxed{\textbf{ya-nā̀}}$	gyārà	kḕkè
boy	3SG.M-IPFV	repair	bicycle

'The boy is repairing the bicycle' (Newman 2000:564)

In (458), the person, gender, and number of the subject DP *yārṑ* 'the boy' are indexed with the morpheme *ya-* in the inflectional particle. This element combines with the imperfective marker *nā̀*.

In the context of Ā-movement, the inflectional element takes a special form known in the Hausa literature as *relative inflection.* Relative inflection is found in imperfective aspect and perfective aspect, but not elsewhere in the TAM system.[14] Relative inflection is shown for a subject *wh*-question in (459a) and for an object *wh*-question in (459b).

(459) *Hausa: relative TAM accompanies Ā-movement*

a. *Subject* wh-*question*

su-wānḕ$_i$	$\_\__i$	$\boxed{\textbf{sukà}_i}$	sàyi	bakar̃	mōtā̀?
3PL-who		3PL.REL.PFV	buy	black.of	car

'Who bought the black car?' (Green and Reintges 2015:134)

b. *Object* wh-*question*[15]

mḕ$_i$	*pro*$_k$	$\boxed{\textbf{sukà}_k}$	sàyā	$\_\__i$	à	kā̀suwā?
what	3PL.REL.PFV	buy	at		marker	

'What did they buy at the market?' (Green and Reintges 2015:134)

In (459a), subject agreement on the inflectional particle *sukà* is controlled by the extracted *wh*-subject *su-wānḕ* 'who.PL'. The inflectional particle reflects the full set of φ-features of the *wh*-subject and in addition, takes the relative form of the perfective. In (459b), subject agreement on the inflectional particle *sukà* is controlled by a null *pro* subject, while the relative form of the perfective is triggered by extraction of the *wh*-object, *mḕ* 'what'.

Thus, relative inflection in Hausa surfaces on the inflectional particle even when a non-agreement controller is extracted. In this way, it is like complementizer choice in Irish

14. I do not address this asymmetry here. For discussion, see Green and Reintges (2015).
15. The *pro* in this example is my addition.

or complementizer agreement in Lubukusu. In all three languages, the relevant effect appears with any instance of Ā-movement, not just Ā-movement of a particular DP.

Importantly, although this Ā-sensitive morphology appears on an inflectional particle that also hosts agreement, it never causes a reduction of φ-feature contrasts in that agreement morphology. This is the case even with 1st and 2nd person Ā-subjects (Melanie Green, p.c.). In fact, the same is true of all instances of Ā-sensitive morphology that have a general trigger, appearing with any instance of Ā-movement, not just Ā-movement of some particular DP, as codified in (460).

(460) *Generalized Ā-sensitivity is non-reductive*

Ā-sensitive morphology that is triggered by the Ā-movement of *any* XP in the clause never triggers a reduction in φ-agreement. Such effects are limited to extraction of particular DPs.

This generalization clearly applies to Hausa, where the appearance of a relative inflectional particle form is triggered by Ā-movement in general, and not Ā-movement of a particular DP. It is also true of Irish, where the appearance of the Ā-complementizer *aL* does not trigger reduction of φ-feature agreement on the verb.

That the generalization in (460) applies to Lubukusu is more subtle a conclusion. This is because there are multiple instances of φ-agreement in the Lubukusu clause that can potentially be affected by Ā-features on a DP. The crucial observation is the presence of Ā-features on a DP only ever triggers φ-feature impoverishment on a head that DP has interacted with. When the subject has an Ā-feature, it interacts with the subject agreement φ-probe and the Ā-probe on C. In these cases, both heads undergo [PERSON] impoverishment triggered by the Ā-feature copied from the extracted subject. When an Ā-feature is present on a non-subject, however, subject agreement is unaffected morphologically—only the C head undergoes [PERSON] impoverishment. Thus, the Ā-feature on an extracted non-subject is unable to affect the form of φ-agreement on the subject agreement head.

In the context of the theory of anti-agreement developed in this dissertation, the generalization in (460) suggests that φ-impoverishment triggered by Ā-features is very local. Specifically, I propose that such rules are constrained by the principle in (461).

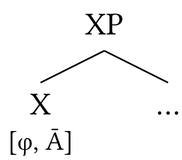
(461) *Locality of Ā-triggered φ-impoverishment*

For impoverishment rules that delete some subset of [φ] on head X in the context of an Ā-feature, that Ā-feature must be located on X.

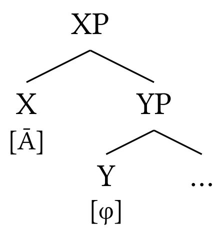
The locality principle in (461) prevents φ-deletion in the context of Ā-features from occurring when the Ā-feature in question is outside of the immediate head where the targeted φ-features reside. In other words, Ā-triggered φ-impoverishment is possible in structure in (462a), but is impossible in the structure in (462b).

(462) *Locality of impoverishment*

a. *Impoverishment possible*



b. *Impoverishment impossible*



In (462a), φ-features and an Ā-feature reside on the same head, X. In this configuration, the locality principle in (461) allows for φ-impoverishment. Impoverishment is impossible in (462b), because the features [Ā] and [φ] are located on different heads.

In languages with both a general marker of Ā-extraction and anti-agreement, both configurations will arise and be significant. An example comes from Seereer. Recall that in Seereer, verbs in clauses with Ā-movement are marked with the suffix *-u*, which I argued in chapter 5 is the realization of the head Fin. In addition, subject Ā-movement in Seereer triggers anti-agreement. Compare the example of subject extraction, in (463a), to the example of object extraction in (463b).

(463) *Focus suffix marking in Seereer*

a. *Subject* wh-*question*

an	(*a-)jaw-'-**u**	maalo	fe?
who	3-cook-Pst-Foc	rice	the

'Who cooked the rice?'

b. *Object* wh-*question*

xar	Jegaan	*(a-)jaw-'-**u**?
what	Jegaan	3-cook-Pst-Foc

'What did Jegaan cook?'

In (463a), subject extraction blocks the presence of the 3rd person agreement prefix *a-* and triggers focus suffix marking. In (463b), object extraction triggers focus suffix marking, but subject agreement is obligatory.

I propose that the focus suffix *-u* in Seereer is the spell out of the head Fin in the context of a valued Ā-probe on a higher CP-level head which Ā-movement targets. Specifically, I propose that Ā-movement in Seereer targets Spec-ForceP, and that this head is merged directly above FinP and that *-u* has the VI in (464).

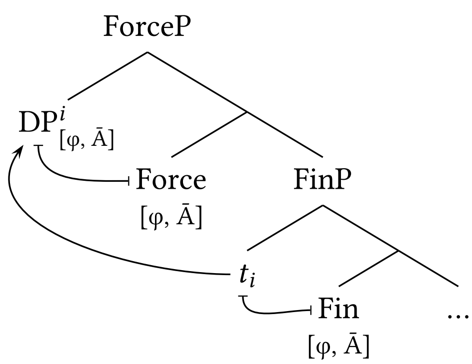
(464) *Seereer focus suffix VI*

-u ↔ [Fin] / __ [Ā, Force]

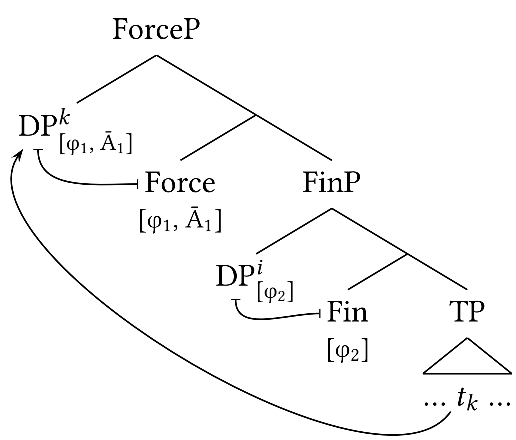
I use the bracketing of features in (464) to features [Ā, Force] are on the higher node, and not on the node Fin itself. The VI in (464) will spell out the categorial feature Fin when the head Force has an Ā-feature. This will occur whenever Force has attracted an Ā-marked XP to its specifier. Thus, any type of Ā-movement to ForceP will give rise to the structural configuration in (462b), as shown (465).

(465) *Locality of impoverishment in Seereer*

a. *Subject Ā-movement*



b. *Object Ā-movement*



In (465a), a subject DP with an Ā-feature is attracted to Spec-ForceP from Spec-FinP, while in (465b), an Ā-feature is attracted to Spec-ForceP from inside TP. In both cases, the Ā-feature on the moved DP is copied onto Force. This gives rise to the context for insertion of *-u* in (464). However, only subject Ā-movement in (465a) will give rise to the configuration necessary for anti-agreement. In that case, the extracted subject first moves to Spec-Fin, and Fin copies back both [φ] and [Ā]. This triggers the φ-impoverishment rule in (466), repeated below.

(466) *Seereer φ-impoverishment rule*
[φ] → Ø / [__, Ā, Fin]

The rule in (466) deletes all φ-features on Fin in the context of an Ā-feature. The necessary context is not present in (465b), where Fin has copied only φ-features from the subject DP.

The locality principle in (461) forces us to conclude that whenever there is φ-impoverishment in the context of an Ā-feature on a specific agreeing DP, that Ā-feature and the φ-features reside on the same head. Generalized Ā-sensitive morphology that occurs in the context of Ā-dependencies that target *any* XP, like in Seereer, Hausa, Lubukusu, and Irish, will not trigger impoverishment.

Finally, treating anti-agreement as the morphological outcome of agreement with an Ā-feature has a consequence for another widely accepted generalization about the types of projections that *wh*-agreement targets that goes back to Zaenen (1983), shown in (467).

(467) *Zaenen's Generalization*
Only complementizers and verbal morphology are affected by *wh*-agreement.
(as formulated in Watanabe 1996:177)

While it is true that most instances of Ā-sensitive morphology surface on a complementizer, a verb, or a verbal inflectional projection (as all the instances of Ā-sensitive morphology discussed in this section do), we have seen at least one instance of such morphology surfacing on a nominal projection. Specifically, agreement on possessive D in Abaza is sensitive to the presence of Ā-features on the possessor DP in Spec-DP$_{\text{POSS}}$. An example from possessor relativization is repeated below.

(468) Wh-*agreement with possessor relative operator*

[$_{\text{CP}}$	[$_{\text{DP}}$	*Op$_i$*	$\boxed{\textbf{z}}$-tdzə	]	*pro*	yə-w-xʷaʕ-z	] a-qac'a$_i$
			POSS.WH-house		2SG.M	ABS.WH-2SG.M-buy-PST	DEF-man

'the man whose house you bought' (O'Herin 2002:260)

In (468), possessive agreement takes the form *z-*, the same form found for ergative *wh*-agreement in the verbal system. The morphological theory of anti-/*wh*-agreement offers a unified analysis of these two agreement exponents: in both cases, *z-* is inserted after φ-impoverishment applies to a probe that has copied back both [φ] and [Ā] from its goal. This allows for the insertion of a morpheme expressing the remaining Ā-feature. This is an attractive result, as it explains the similarity of the ergative and possessive agreement forms in Ā-contexts without positing multiple morphemes and accidental homophony.

This unified account, however, challenges Zaenen's Generalization, in that same *wh*-agreement exponent shows up on both a verbal projection (v in the case of ergative *wh*-agreement) and a nominal projection (D_{POSS} in the case of possessor *wh*-agreement).

The presence of *wh*-agreement on a nominal projection is unproblematic for the morphological account of anti-agreement. There is no reason a priori to think that there should be an asymmetry between nominal and verbal projections with regards to Ā-sensitive morphology. In fact, my account leads us to think that Ā-sensitive phenomenon may be more common than first assumed. Therefore, further work should be done to see if other examples of Ā-sensitive morphology in the nominal domain exist, and how they fit into the broader typology of these effects.

6.5 Closing remark

Although anti-agreement effects have been discussed for two and a half decades, little consensus has emerged as to the theoretical principles that should be employed to derive the phenomena involved. I posit that this is because of a drive to find a set of narrowly syntactic constraints or principles that can derive anti-agreement. The theory that I have put forward in this dissertation fundamentally moves away from this thread—anti-agreement is located squarely in the morphology. As I have demonstrated, the morphological approach has remarkably broad empirical coverage, while also predicting the restrictions that are observed in anti-agreement crosslinguistically.

By locating anti-agreement in the morphology, the account removes the need for narrow syntactic parameterization—the syntax of agreement is the same between the non-Ā-context and the Ā-context. Variation as to whether or not a language has an Ā-sensitive φ-agreement effect and how that effect manifests is due to a language's inventory of morphological rules and the lexical resources that language has at its disposal. Thus, this work fits within the Minimalist program's broader agenda of limiting parameterization of the narrow syntax and moving that variation to other factors, such as lexical variation in the feature inventory of a language (Borer 1984; Chomsky 1995, 2005). The account of anti-agreement set out in this dissertation shows that morphological aproach is also a valuable avenue for the analysis of seemingly syntactic crosslinguistic variation.

Appendix A

Crosslinguistic Survey Results

As detailed in the introduction, the empirical foundation for the theory of anti-agreement developed in this dissertation is a crosslinguistic survey of 63 languages exhibiting φ-agreement that is sensitive to the presence of Ā-features on its controller, representing all the entirety of languages that I have found to display such effects. These languages were found by searching the existing literature on anti-agreement, conferring with field-workers and language experts, and searching through grammars and other grammatical descriptions. Overall, I have consulted an estimated 120 grammars. During the construction of the survey, potential languages were identified based on genetic relatedness to languages known to exhibit anti-agreement, as well as searches based on both areal and genetic diversity. Altogether, the survey includes languages from all continents except Australia, and languages from at least 16 families.

This appendix summarizes the findings of the crosslinguistic survey of Ā-sensitive φ-agreement effects. Table A.1, below, provides five different types of information.

1. **Head**

   Which heads are affected by the given impoverishment rule. Conventions used:

   i. Agr = impoverishment rule in question affects all heads that host a φ-probe in the language

   ii. Agr† = I was unable to determine if the affected φ-probe is hosted on a dedicated Agr head or a specific head.

   iii. v_{TR} = the v head found in transitive clauses

   iv. v_{AGT} in Bare indicates that impoverishment is only found in transitive clauses and agentive intransitives.

2. **Agreement**

   The featural contrasts that the head expresses in the non-Ā-context. Conventions:

   i. [P] = [PERSON]

   ii. [G] = [GENDER]

   iii. [N] = [NUMBER]

3. **Impoverishment**

   The features that are deleted by the impoverishment rule in question.

4. **Ā-trigger**

   The Ā-feature that triggers the impoverishment on the given head. The value "[Ā]†" indicates that data was insufficient to determine if there are finer grained distinctions among Ā-triggers.

5. **φ-trigger**

   The φ-feature which must be present in addition to the Ā-trigger for the impoverishment rule to apply.

6. **Ā-exponence**

   Whether or not the head in question exhibits Ā-exponence. There are three possible values.

   i. Yes = the head always marks the presence of the Ā-feature that triggers impoverishment.

   ii. Mixed = the head marks the presence of the Ā-feature that triggers impoverishment in some cases, but not others .

   iii. None = the head never marks the presence of the Ā-feature that triggers impoverishment.

There are several languages that are listed twice. For example, Lubukusu is listed as "Lubukusu (1)" and "Lubukusu (2)." These entries provide information about separate patterns of φ-impoverishment.

Language	Head	Agreement	Impoverishment	Ā-trigger	φ-trigger	Ā-exponence
Abaza	Agr	[P, G, N]	[P, G, N]	[Ā]	–	mixed
Abkhaz	Agr	[P, G, N]	[P, G, N]	[Ā]	–	mixed
Kabardian	Agr	[P, G, N]	[P, G, N]	[Ā]	–	mixed
Adyghe	Agr	[P, G, N]	[P, G, N]	[Ā]	–	mixed
Ubykh	Agr	[P, G, N]	[P, G, N]	[Ā]	–	mixed
Matsigenka	T	[P, G]	[P, G]	[OP]	–	none
Caquinte	T	[P, G]	[P, G]	[OP]	–	none
Bare	v$_{AGT}$	[P, G, N]	[P, G, N]	[Ā]†	–	mixed
Yine	Agr†	[P, G N]	[P, G, N]	[WH], [FOC]	–	none
Baniwa	Agr†	[P, G, N]	[P, G, N]	[WH], [FOC]	–	none
Tariana	Agr†	[P, G, N]	[P, G, N]	[WH], [FOC]	–	yes
Lubukusu (1)	Agr	[P, G, N]	[P]	[OP]	–	none
Lubukusu (2)	Agr	[P, G, N]	[P]	[OP]	[-PL]	none
Kilega	Agr	[P, G, N]	[P]	[OP]	–	none
Luganda	Agr	[P, G, N]	[P]	[OP]	–	none
Bemba	Agr	[P, G, N]	[P]	[OP]	–	none
Abo (1)	Agr	[P, G, N]	[P]	[OP]	–	none
Abo (2)	Agr	[P, G, N]	[P]	[OP]	[-PART]	yes
Kikuyu	Agr	[P, G, N]	[P]	[OP]	[-PART]	none
Kinande	Agr	[P, G, N]	[P]	[OP]	[-PART]	none
Zulu	v$_{TR}$	[P, G, N]	[P]	[REL]	[-PL]	none
	T	[P, G, N]	[P]	[REL]	–	none

Table A.1: Properties of anti-agreement in the surveyed languages

Language	Head	Agreement	Impoverishment	Ā-trigger	φ-trigger	Ā-exponence
Ndebele	v_{TR}	[P, G, N]	[P]	[REL]	–	none
Chamorro	v_{TR}	[P, N]	[P, N]	[Ā]	–	yes
Palauan	T	[P, N]	[P, N]	[Ā]	–	yes
Selayarese	T	[P, N]	[P, N]	[Op]	–	none
Makassarese	v_{TR}	[P, N]	[P, N]	[Op]	–	yes
	T	[P, N]	[P, N]	[Op]	–	none
Ibibio	Agr	[P, N]	[P, N]	[WH], [FOC]	–	yes
Tarifit	Asp	[P, G, N]	[P, G, N]	[Op]	–	mixed
Kabyle	Asp	[P, G, N]	[P, G, N]	[Op]	–	mixed
Tashlhit	Asp	[P, G, N]	[P, G]	[Op]	–	mixed
Tamazight	Asp	[P, G, N]	[P, G]	[Op]	–	mixed
Ouargli	Asp	[P, G, N]	[P, G]	[Op]	[-PL]	mixed
	Asp	[P, G, N]	[P]	[Op]	[+PL]	mixed
Ghadamès	Asp	[P, G, N]	[P, G]	[Op]	[+PL]	mixed
	Asp	[P, G, N]	[P]	[Op]	[-PL]	mixed
Tamahaq	Asp	[P, G, N]	[P, G]	[Op]	[+PL]	mixed
	Asp	[P, G, N]	[P]	[Op]	[-PL]	mixed
Tawellemmet (1)	Asp	[P, G, N]	[P, G]	[Op]	–	mixed
Tawellemmet (2)	Asp	[P, G, N]	[P, G]	[Op]	[+PL]	mixed
	Asp	[P, G, N]	[P]	[Op]	[-PL]	mixed
Tamashek	Asp	[P, G, N]	[P, G]	[Op]	[+PL]	mixed
	Asp	[P, G, N]	[P]	[Op]	[-PL]	mixed

Table A.1: Properties of anti-agreement in the surveyed languages

Language	Head	Agreement	Impoverishment	Ā-trigger	φ-trigger	Ā-exponence
Jamsay	Asp	[P, N]	[P, N]	[FOC]	–	none
Bunoge	Asp	[P, N]	[P, N]	[FOC]	–	none
Najamba	Asp	[P, N]	[P, N]	[FOC]	–	none
Ben Tey	Asp	[P, N]	[P]	[FOC]	[-PART]	none
Tommo So	Asp	[P, N]	[P, N]	[FOC]	–	none
Dinka	C_{matrix}	[P, N]	[P]	[OP]	–	mixed
	$C_{embedded}$	[P, N]	[P]	[Ā]	–	mixed
Maasai	T	[P, G, N]	[P, G, N]	[REL]	–	none
Somali	C	[P, G, N]	[P, G, N]	[FOC]	–	none
	Agr	[P, G, N]	[P]	[FOC]	[+ADDR]	none
	T	[N]	[N]	[FOC]	–	mixed
Gawwada	Agr†	[P, G, N]	[P, G, N]	[Ā]†	–	none
Afar	Agr†	[P, G, N]	[P, G, N]	[Ā]†	–	none
Sheko	Agr†	[P, G, N]	[P, G, N]	[Ā]†	–	none
Fiorentino	Agr	[P, G, N]	[P, G, N]	[Ā]	[-PART]	none
Trentino	Agr	[P, G, N]	[P, G, N]	[Ā]	[-PART]	none
Catalan	v	[P, G, N]	[P]	[REL]	[-PL]	none
	T	[P, N]	[P]	[REL]	[-PL]	none
Galician	T	[P, N]	[P]	[REL]	[-PL]	none
Halkomelem, Upriver	T	[P, N]	[P, N]	[Ā]	–	none
	Voice	[P, N]	[P, N]	[OP]	–	none

Table A.1: Properties of anti-agreement in the surveyed languages

Language	Head	Agreement	Impoverishment	Ā-trigger	φ-trigger	Ā-exponence
Halkomelem, Musqueam	T	[P, N]	[P, N]	[OP]	–	none
	Voice	[P, N]	[P, N]	[OP]	–	none
	v_{TR}	[P, N]	[P, N]	[OP]	–	none
Comox	T	[P, N]	[P, N]	[OP]	–	none
	Voice	[P, N]	[P, N]	[OP]	–	none
Squamish	T	[P, N]	[P, N]	[OP]	–	none
	Voice	[P, N]	[P, N]	[OP]	–	none
Northern Straits	T	[P, N]	[P, N]	[OP]	–	none
	Voice	[P, N]	[P, N]	[OP]	–	none
Lushootseed	T	[P, N]	[P, N]	[OP]	–	none
	Voice	[P, N]	[P, N]	[OP]	–	none
Seereer	Fin	[P, N]	[P, N]	[OP]	–	yes
Kobiana	Agr†	[P, N]	–	[FOC]	–	yes
Tadaksahak	Agr†	[P, N]	[P, N]	[OP]	–	mixed
Turkish	Agr†	[P, N]	[P, N]	[REL]	–	yes
Lelemi	Asp	[P, N]	[P, N]	[OP]	–	yes
Tundra Yukaghir	Agr†	[P, N]	[P, N]	[FOC]	[+PART]	mixed
Tamil	n	[P, N]	[P, N]	[FOC]	–	none

Table A.1: Properties of anti-agreement in the surveyed languages

Appendix B

Sources of Language Data

Table B.1 is a non-exhaustive list of sources I have used for the languages in the survey. These include published grammatical descriptions (sketches, reference grammars) and other linguistic work. The table below lists the main sources of data for each language.

Language	**Published source**
Abaza	O'Herin (2002)
Abkhaz	Hewitt (1979a,b)
Kabardian	Colarusso (1992)
Adyghe	Caponigro and Polinsky (2015); Ershova (2017)
Ubykh	Fenwick (2011)
Bare	Aikhenvald (1995a,b)
Yine	Hanson (2010)
Baniwa	Aikhenvald (1995b)
Tariana	Aikhenvald (2003)
Lubukusu	Diercks (2010)
Kilega	Kinyalolo, Kasangati (1991); Diercks (2010)
Luganda	Ashton et al. (1954); Diercks (2010)
Bemba	Cheng (2006); Henderson (2013)
Abo	Burns (2011, 2013)
Kikuyu	Mugane (1997)
Kinande	Schneider-Zioga (1995, 2007)

Table B.1: Published sources of data

Language	Published source
Zulu	Doke (1997)
Ndebele	Pietraszko (2018)
Chamorro	Chung (1994, 1998)
Palauan	Georgopoulos (1991)
Selayarese	Finer (1997, 1998)
Makassarese	Jukes (2013)
Ibibio	Baker (2008)
Tarifit	Ouhalla (1993); El Hankari (2010); Drouin (1996)
Kabyle	Mihuc (2017); Drouin (1996)
Tashlhit	Drouin (1996)
Tamazight	Drouin (1996)
Ouargli	Biarnay (1908); Drouin (1996)
Ghadamès	Kossmann (2013); Drouin (1996)
Tamahaq	Drouin (1996)
Tawellemmet	Drouin (1996)
Tamashek	Heath (2005)
Jamsay	Heath (2008)
Bunoge	Heath (2012)
Najamba	Heath (2011)
Ben Tey	Heath (2013)
Tommo So	McPherson (2013)
Dinka	van Urk (2015)
Maasai	Tucker and Mpaayei (1955)
Somali	Saeed (1993); Andrzejewski (1968)
Gawwada	Tosco (2007, 2010)
Afar	Bliese (1981)
Sheko	Hellenthal (2010)
Fiorentino	Brandi and Cordin (1989)
Trentino	Brandi and Cordin (1989)
Halkomelem	Suttles (2004); Wiltschko (2006); Kroeber (1999)

Table B.1: Published sources of data

Language	**Published source**
Comox	Kroeber (1999)
Squamish	Kroeber (1999)
Northern Straits	Kroeber (1999)
Lushootseed	Davis et al. (1993); Kroeber (1999)
Tadaksahak	Christiansen and Levinsohn (2003); Christiansen (2010)
Turkish	Kornfilt (2008)
Lelemi	Schwarz and Fielder (2006)
Tundra Yukaghir	Maslova (2003); Schmalz (2012)
Tundra Nenets	Nikolaeva (2014),
Kaqchikel	Erlewine (2016)
Tamil	Selvanathan (2017)

Table B.1: Published sources of data

Table B.2 lists those who I have personally communicated with for clarification, further data, or native judgements. If a source provided native judgements, I list that person as a 'consultant'.

Language	**Personal Communication**
Abaza	Brian O'Herin
Matsigenka	Zachary O'Hagan, Lev Michael
Caquinte	Zachary O'Hagan
Lubukusu	Michael Diercks
Abo	Roslyn Burns
Kikuyu	Michelle Yuan
Kinande	Patricia Schneider-Zioga
Zulu	Claire Halpert; Jochen Zeller
Ndebele	Asia Pietraszko
Ibibio	Travis Major, Harold Torrence, Phillip Duncan
Kabyle	Karima Ouazar (consultant)
Dinka	Coppe van Urk
Trentino	Patrizia Cordin
Catalan	Bernat Bergadil Mas (consultant)
Galician	Rosa García-Junco (consultant)
Mexican Spanish	Jorge Beltrán Luna (consultant)
Halkomelem	Donna Gerdts
Turkish	Ümit Atlamaz (consultant)
Tamil	Nagarajan Selvanathan
Seereer	El-Haji Malik Loum

Table B.2: Personal communication sources by language

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