The Locus of Variation in Ā-Sensitive Agreement

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1 Introduction

- In many languages, clausal morphology is sensitive to the features typically associated with Ā-extraction, such as those related to wh-questioning, relativization, focus and topicalization.

- In particular, in many languages the form of φ-agreement is sensitive to these features, a phenomenon I will refer to as Ā-sensitive φ-agreement (effects), defined descriptive as in (1).

(1) Ā-sensitive φ-agreement effects

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 φ1 on nominal N when N does not have an Ā-feature and

b. X takes the form β for φ1 on N when N does have an Ā-feature, where α≠β.

- Some examples of effects in relative clauses meeting the definition above are shown in (2)–(4), below.¹

(2) Fiorentino (Romance, Italy)

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 1989:124–125)

(3) Abkhaz (West Caucasian, Russia)

way a-xac'a da-{z/'}l} báz a-ýah
that DEF-boy 3SG.AN.ABS-{'WH.ERG/3SG.F.ERG}-saw DEF-girl
‘the girl who saw that boy’

(Hewitt 1979:61)

(4) Kabyle (Berber, Algeria)

taqic-t nni i { i-wala-n / 't-wala } Mohand
woman-DIM C { 3SG.M-see-PTCP / 3SG.F-see } Mohand
‘the girl who saw Mohand’

¹Abbreviations used in this handout: 1 = first person, 2 = second person, 3 = third person, AA = anti-agreement (form), ABS = absolutive, AN = animate, CL = class (Bantu), DEF = definite, DEM = demonstrative, ERG = ergative, F = feminine, FOC = focus, INAN = inanimate, M = masculine, PFE = perfective, PL = plural, PRE = present, PST = past, PTCP = participle, REL = relative, SBJ = subject, SG = singular, wh = wh-related morpheme.

²Unless otherwise cited, Kabyle data in this talk were elicited by me during work with two native speakers in Montréal.

In all three languages, the form of φ-agreement crossreferencing the head of the relative clause does not take the form expected given the φ-features of that nominal

- However, there are differences in the specifics of the morphology that surfaces in these contexts.

  ▶ Fiorentino → The subject clitic and finite auxiliary are in default form (3SG.M and 3SG)

  ▶ Abkhaz → Ergative agreement takes a specialized form that only occurs with Ā-arguments (z-)

  ▶ Kabyle → The verb takes default agreement (i- 3SG.M) and an additional 'participle' suffix (-n)

The Puzzle

Why does implication in an Ā-dependency affect the form of agreement referencing a DP? That is, why does the situation in (5) potentially affect φ-agreement on H?

(5) [ … DP[φ, Ā] ... AGR-H … ]

The dominant line of thought in the previous literature has been to treat default morphology in the Ā-context as distinct.

- Default morphology → generally referred to as anti-agreement since Ouhalla (1993):
  - Treated as lack of agreement. Syntactic constraints on Ā-movement block extraction of the agreeing DP. Circumvention of these constraints disrupts the normal syntax of agreement (Ouhalla 1993; Richards 1997, 2001; Boeckx 2003; Schneider-Zioga 2007; Diercks 2010; Henderson 2013, a.o.).

- Specialized morphology → generally referred to as wh-agreement in the literature (Georgopoulos 1991; Watanabe 1996; Chung 1998).
  - Treated as the result of a normal agreement process between a head/probe and DP bearing Ā-related features (Chung and Georgopoulos 1988; Georgopoulos 1991; Chung 1998; Watanabe 1996, O’Herin 2002; Caponigro and Polinsky 2015)

- On this view, Ā-sensitive φ-agreement effects do not constitute a single theoretical class

Evidence from variation

- Today, I focus on the range of variation in the morphology that languages employ in the Ā-context, what this morphological variation tells us about Ā-sensitive φ-agreement

  ⇒ I argue that the above analytic dichotomy should be abandoned – anti-agreement and wh-agreement are two different surface instantiations of the same underlying phenomenon. Variation is located in the morphology.
Analysis in a nutshell

**Syntax**

When a φ-probe agrees with a goal bearing an Ā-feature, the resulting feature bundle on the probe includes both φ-features and an Ā-feature.

(6)

\[ H \upharpoonright [\text{up}] \ldots \text{DP} \downharpoonright [\varphi, \tilde{A}] \ldots \]

**Morphology**

When Ā-features and φ-features cooccur in the same feature bundle, partial or total impoverishment of the φ-features may take place.

(7) Bundle on \( H \)

\[ [H, \varphi, \tilde{A}] \]

(8) Impoverishment

\[ \varphi \rightarrow \emptyset / [\_], H, \tilde{A} \]

Impoverishment leads to the realization of an unexpected underspecified exponent.

**Variation** arises from how a given language’s morphology manipulates and realizes feature bundles of the type in (7)

Focus on two dimensions of variation:

1. How many φ-feature contrasts are expressed in the Ā-context?
   - No φ-features = total φ-impoverishment
   - Some φ-features = partial φ-impoverishment
   - All φ-features = no φ-impoverishment

2. Is there specialized morphology that occurs only in the Ā-context = Ā-exponence

Dimensions 1 and 2 are independent of one another, that is, we can fill in completely a two by three typology of the interaction between φ-impoverishment and Ā-exponence, as shown in table 1.

The analysis argued for here derives this variation through a uniform syntax for agreement in the non-Ā- and Ā-contexts. Variation is located in the morphology

2 Deriving Ā-sensitive φ-agreement effects

- In section 2.1, I motivate the morphological analysis of Ā-sensitive φ-agreement, taking a close look at the West Caucasian language Abaza (closely related to Abkhaz)

- In section 2.2, I give an overview of the types of syntactic accounts that have been employed in the literature to account for anti-agreement

2.1 Abaza: motivating the analysis

- Verbs in Abaza display an ergative-absolutive agreement pattern for person/gender/number. Both subjects and objects control agreement in transitive clauses.
  - Intransitive subjects and transitive objects control one agreement paradigm; transitive subjects control another.
  - Absolutive is distinguished from ergative by position in the verb and by the form of 3rd person exponents.

Following O’Herin’s (2002) analysis of Abaza, I assume that agreement prefixes spell out φ-probes on functional heads along the clausal spine. Specifically, I assume these probes are hosted by T (absolutive) and v (ergative).

(9) Agreement with T and v

\[ \text{TP} \]

\[ \text{T} \upharpoonright [\text{up}] \ldots \text{vP} \]

\[ \text{DP}_{\text{ABS}} \text{v} \rightarrow [\_], \text{V} \rightarrow \text{DP}_{\text{ABS}} \]

\[ \text{VP} \]

\[ \text{V} \rightarrow \text{DP}_{\text{ABS}} \]

\[ \text{DP}_{\text{ABS}} \]

- The lower φ-probe on v agrees with the external argument in Spec-vP.

- The higher φ-probe on T agrees with the next highest DP inside vP.

- Because ergative agreement is not present in intransitive clauses, I assume that only transitive v hosts a φ-probe.

Table 1: Typology of Ā-exponence and impoverishment

<table>
<thead>
<tr>
<th>1 φ-impoverishment</th>
<th>2 Ā-exponence</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>PARTIAL</td>
</tr>
<tr>
<td>[1]</td>
<td>[2]</td>
</tr>
<tr>
<td>[C]</td>
<td>[C]</td>
</tr>
<tr>
<td>Fiorentino</td>
<td>Lubukusu</td>
</tr>
</tbody>
</table>

See Coon (2017) for arguments that ergative agreement is low, derived by Spec-Head agreement with v.
I assume that heads bearing φ-probes bear a feature that marks them as agreement heads. I will call this feature \([\text{Agr}]\).\(^4\)

So, the heads \(T\) and \(v\) will have (at least) the features in (10) after Agree:

(10) Features on \(T\) and \(v\) after Agree

\[\begin{align*}
\text{a. } & [T, \phi, \text{Agr}] \\
\text{b. } & [v, \phi, \text{Agr}] 
\end{align*}\]

Each agreement paradigm in Abaza includes a morpheme that indexes Ā-arguments: \(y\)- for absolutives, (11) and \(z\)- for ergatives, (12).

(11) Absolutive \(\text{wh}\)-agreement: \(y\)-

\[\begin{align*}
a. & \text{ a-čʷwal } \text{dzačʷǝya}, \text{ya-}ta-wa \\
& \text{DEF-sack what } \text{ABS.WH-IN-PRS} \\
& \text{‘What is in the sack?’} \\
& \text{(O’Herin 2002:252)} \\
b. & \text{ Izmir } \text{pro } \text{dzačʷǝya}, \text{ya-}r-bakʷaz \\
& \text{Izmir 3PL who } \text{ABS.WH-3PL-SEE.PL.PST} \\
& \text{‘Who did they see in Izmir?’} \\
& \text{(O’Herin 2002:252)}
\end{align*}\]

(12) Ergative \(\text{wh}\)-agreement: \(z\)-

\[\begin{align*}
a. & \text{ dǝzda } s-axčʲ\text{a } \text{za-yačl} \\
& \text{who 1SG-money ERG.WH-STEAL} \\
& \text{‘Who stole my money?’} \\
& \text{(O’Herin 2002:252)} \\
b. & \text{ a-fačʲǝʕʷ } \text{a-finǰʲan a-pnǝ } \text{dǝzda}, \text{y-na-}z-\text{axʷ} \\
& \text{DEF-sugar DEF-CUP 3SG.INAN-AT who 3SG.INAN-PFV-ERG.WH-TAKE} \\
& \text{‘Who took the sugar out of the cup?’} \\
& \text{(O’Herin 2002:252)}
\end{align*}\]

I argue that \(\text{wh}\)-agreement in Abaza is the result of an Agr head agreeing with a DP bearing an Ā-movement related feature, \([\text{Ā}]\).

\(^4\) I take the \([\text{Agr}]\) feature in (10) to be equivalent to the postsyntactically inserted, dissociated Agr-nodes that are assumed in some analyses of morphological agreement in DM (Halle and Marantz 1993; Kramer 2010; Norris 2014).

\(^3\) Each agreement paradigm in Abaza includes a morpheme that indexes Ā-arguments: \(y\)- for absolutives, (11) and \(z\)- for ergatives, (12).

\(^5\) Observation 1: The two \(\text{wh}\)-agreement morphemes differ in their relationship to the rest of the paradigm.
\(\triangleright\) Ergative \(\text{wh}\)-agreement \(z\)- \text{does not} occur elsewhere in the paradigm.
\(\triangleright\) Absolutive \(\text{wh}\)-agreement \(y\)- \text{does} occur elsewhere in the paradigm.

\(^6\) Observation 2: \(\text{Wh}\)-agreement is highly syncretic – it only expresses that a given Agr head has agreed with an Ā-operator. No other φ-feature contrasts are expressed.

Assuming syncrétism arises from underspecification, we come to the following conclusion:

(13) The prefixes \(z\)- and \(y\)- are highly underspecified. They spell out a very small set of features.
\[\begin{align*}
a. & \text{ The prefix } y\text{- is a morphological default.} \\
& \text{b. The prefix } z\text{- spells out the feature } [\text{Ā}] \\
\end{align*}\]

Taking (13) seriously, I assume that there are basically three types of agreement vocabulary items (VIs) in Abaza, shown in table 4:

<table>
<thead>
<tr>
<th>VI type</th>
<th>Features spelled out</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full agreement</td>
<td>([\phi, \text{Agr}])</td>
<td>Abs/Erg</td>
</tr>
<tr>
<td>Full agreement</td>
<td>([\phi, \text{Agr}, T])</td>
<td>Abs</td>
</tr>
<tr>
<td>Proper Wh-agreement ((z)-)</td>
<td>([\text{Ā}, \text{Agr}, v])</td>
<td>Erg</td>
</tr>
<tr>
<td>Elsewhere ((y)-)</td>
<td>([\text{Agr}])</td>
<td>Abs</td>
</tr>
</tbody>
</table>

\(\triangleright\) The agreement VIs \(z\)- and \(y\)- do not spell out φ-features.

(14) \(z\- \leftrightarrow [\text{Ā}, \text{Agr}, v]\)
The prefix \( y- \) spells out just \([\text{Agr}]\).

\[(15) \quad \text{Abaza default agreement} \]

\( y- \leftrightarrow [\text{Agr}] \)

I argue that a feature bundle including an \( \bar{\text{A}} \)-feature like the one in (14) is an option because of the way \( \varphi \)-probes interact with the features on a goal that they agree with.

**Ingredients of the account**

1. XPs that undergo \( \bar{\text{A}} \)-movement bear some kind of \( \bar{\text{A}} \)-feature. I assume that \( \bar{\text{A}} \)-features on DPs are merged on D and both \( \bar{\text{A}} \)-features and \( \varphi \)-features percolate to the DP level.

\[(16) \quad \text{DP bearing both \( \bar{\text{A}} \)- and \( \varphi \)-features} \]

\[ \text{DP}_{[\varphi, \bar{\text{A}}]} \]

\[ \text{D}_{[\varphi, \bar{\text{A}}]} \]

2. Following Deal (2015, 2016), a probe’s interaction condition(s) and satisfaction condition(s) may be distinct.

\[(17) \quad \text{Interaction and Satisfaction in \( \varphi \)-agreement} \]

A probe \( H \) may interact with feature set \( F \) even if it may only be satisfied by feature set \( G \), \( G \subseteq F \).

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 2016:3)

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.

3. The set of \( \varphi \)-features (\( \Phi \)) and the set of \( \bar{\text{A}} \)-features (\( \bar{\text{A}} \)) belong to a larger set of features, \( \mathcal{F} \).

\[(18) \quad \mathcal{F} = \{\Phi, \bar{\text{A}}\} \]

a. There is no variation in interaction conditions – \( \varphi \)-probes and \( \bar{\text{A}} \)-probes both have the same interaction conditions: \( \mathcal{F} \).

- Consider the consequences of (17) and (18) for a \( \varphi \)-probe on a head \( H \) that finds a DP that bears both \([\varphi]\) and \([\bar{\text{A}}]\).

\[(19) \quad \text{\[\varphi\] on } H \text{ searches in its c-command domain for features and finds the DP bearing } [\varphi]\text{ and } [\bar{\text{A}}]. \]

\( \text{\[\varphi\] on } H \text{ searches in its c-command domain for features and finds the DP bearing } [\varphi]\text{ and } [\bar{\text{A}}]. \)

\( \text{The probe interacts with both of these features, and therefore copies back both sets of features to } H. \)

- Therefore, a head with \([\text{up}]\) that Agrees with a DP with \([\bar{\text{A}}]\) in Abaza will always have (at least) the features in (20).

\[(20) \quad \text{Form of an Abaza head hosting a } \varphi \text{-probe after } \text{Agree with operator} \]

\[ [\varphi, \bar{\text{A}}, \text{Agr}, \left\{ \varphi \right\} ] \]

- However, if (20) is the form of a \( \varphi \)-probe at the point of Vocabulary Insertion, the prefixes \( z- \) and \( y- \) should never be inserted, even in \( \bar{\text{A}} \)-contexts where this indeed occurs.

- This is because vocabulary insertion is constrained by the Subset Principle (Halle and Marantz 1993).

\[(21) \quad \text{Subset Principle (based on Keine 2010:8)} \]

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).

- Full agreement Vs should always be inserted instead of \( z- \) or \( y- \) because they will always realize more features of the feature bundle in (20) than \( z- \) or \( y- \).

**The Solution**

- I propose that \( z- \) and \( y- \) can be inserted in the first place because of the post-syntactic operation **impoverishment** (Bonet 1991; Noyer 1992, 1997; Halle and Marantz 1993; Keine 2010).

- Specifically, I argue that the impoverishment rule in (22) applies prior to Vocabulary Insertion in Abaza.

\[(22) \quad \text{Abaza } \varphi \text{-feature impoverishment} \]

\[ [\varphi] \rightarrow \emptyset / [\ldots, \bar{\text{A}}, \text{Agr}] \]

- 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.
This analysis centers the mechanism that derives Ā-sensitive agreement primarily in the morphology.

- The same sequence of operations underlies φ-agreement in the Ā-context and in the non-Ā-context
  i. Agree in the syntax
  ii. Vocabulary insertion in the morphology
- Copying of an Ā-feature to a head with a φ-probe in the syntax has morphological consequences, here impoverishment of all φ-features on the probe.

### Core Intuition

There is a deep connection between underspecification, impoverishment, and the morphology that appears in the context of Ā-movement.

In terms of the dimensions of variation mentioned in the introduction, Abaza has ...

- Total impoverishment, as no φ-features are expressed in the Ā-context
- Ā-exponence with ergative agreement
- No Ā-exponence with absolutive agreement

### Table 5: Typology of Ā-exponence and impoverishment

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Partial</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ā-exponence</td>
<td>Yes</td>
<td>Abaza</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Abaza</td>
<td></td>
</tr>
</tbody>
</table>

The fact that Abaza instantiates both this options is significant, in that it shows that lack of φ-agreement is not in complementary distribution with Ā-exponing morphology in the same language.

## 2.2 Syntactic alternatives

As mentioned above, the dominant line of thought in previous literature has been to treat default morphology in the Ā-context (“anti-agreement”) as different from specialized Ā-related agreement morphology (“wh-agreement”)

- There is little theoretical consensus in the literature on how anti-agreement should be derived, but existing accounts are predominantly syntactic.
- The core idea is that anti-agreement results from syntactic constraints on movement. The logic is generally as follows:
  1. Agreement with a DP requires a certain structural configuration.

    - This structural configuration blocks Ā-movement of that DP.
    - For such a DP to be extracted, it must not enter into the structural configuration required for φ-agreement.
    - Because the DP does not enter into this configuration, no φ-agreement occurs.

- In other words, anti-agreement should arise in the scenario in (23), where α is a position normally targeted for φ-agreement, and β is the landing site of Ā-movement.

    (23) 
    \[
    \begin{array}{ccc}
    \text{XP} & \ldots & \text{YP} \\
    \end{array}
    \]

- Syntactic accounts of anti-agreement differ on the specifics of the nature of the constraint employed.

1. **Criterial Freezing** (Rizzi and Shlonsky 2007; Diercks 2010; Shlonsky 2014)
   - Canonical φ-agreement requires that the DP move to a ‘criterial position’, from which further movement is blocked (Rizzi 2006, 2007).
   - Avoidance → don’t move to the criterial position

2. **Feature Strength** (Richards 1997, 2001; Boeckx 2003; Henderson 2013)
   - Positions in a movement chain may be ‘strong’ or ‘weak’ (defined featurally). A chain may not contain more than one ‘strong’ position. Ā-movement and φ-agreement both involve ‘strong’ features.
   - Avoidance → ‘weaken’ a strong position (voiding agreement)

3. **Anti-locality** (Bošković 1997; Cheng 2006; Schneider-Zioga 2007; Erlewine 2016; Pesetsky 2016)
   - Phrasal movement must not be too short/local. Canonical φ-agreement brings a DP into a position from which Ā-movement will qualify as too short.
   - Avoidance → move from a position that is not in an anti-local configuration

- The shared property of this type of accounts is that the normal syntax of φ-agreement is disrupted by Ā-movement.

- In the next sections, I’ll present data that are problematic for this core property
- The unified, morphological theory of Ā-sensitive φ-agreement developed in the previous section handles these data in a straightforward way.

⁵See Baier (2017) for further arguments against an anti-locality based approach to anti-agreement not discussed in this talk.
3 Variation in φ-feature neutralization

- Languages differ as to how many φ-feature contrasts are neutralized in the presence of Ā-features.
  - Total neutralization → all φ-feature contrasts are neutralized
  - Partial neutralization → some φ-feature contrasts are neutralized while others are retained.

- Compare the Kabyle data in (24) with the Tashlhit (Berber, Morocco) data in (25). In Tashlhit, number agreement is retained under subject extraction, while person and gender agreement are suppressed.

(24) Kabyle (Berber, Algeria)

\[ \text{iqcicin-nni} \quad \text{woman-dem} \quad i \quad \text{f-f-f} \quad 3\text{sg.m-see-ptcp} / \text{see-3pl.m} \quad \text{Mohand} \]

‘the boys who saw Mohand’

(25) irgazn, nna ffegh-n-*(in)

\[ \text{man.pl C rel} \quad \text{ffegh-n-*(in) left-pfv-f ptcp-*(pl)} \]

‘the men who left.’ (Ouhalla 2005 citing Chafiq 1990:123)

- In Kabyle, the verb takes a 3sg.m prefix \( i \) and the participle suffix \(-n\).
- In Tashlhit, the verb takes the participle suffix, and in addition must take the plural suffix \(-in\).

- The Kabyle and Tashlhit subject agreement paradigms and participle forms are given in the tables below.

<table>
<thead>
<tr>
<th></th>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V-n</td>
<td>n-V</td>
</tr>
<tr>
<td>2m</td>
<td>t-V-t</td>
<td>t-V-m</td>
</tr>
<tr>
<td>2f</td>
<td>i-V-t</td>
<td>i-V-mt</td>
</tr>
<tr>
<td>3m</td>
<td>i-V</td>
<td>V-n</td>
</tr>
<tr>
<td>3f</td>
<td>t-V</td>
<td>V-nt</td>
</tr>
</tbody>
</table>

Table 6: Kabyle φ-agreement

<table>
<thead>
<tr>
<th></th>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>i-V-n</td>
<td>i-V-n</td>
</tr>
<tr>
<td>2m</td>
<td>i-V-n</td>
<td>i-V-n</td>
</tr>
<tr>
<td>2f</td>
<td>i-V-n</td>
<td>i-V-n</td>
</tr>
<tr>
<td>3m</td>
<td>i-V-n</td>
<td>i-V-n</td>
</tr>
<tr>
<td>3f</td>
<td>i-V-n</td>
<td>i-V-n</td>
</tr>
</tbody>
</table>

Table 7: Kabyle participle

<table>
<thead>
<tr>
<th></th>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V-V</td>
<td>n-V</td>
</tr>
<tr>
<td>2m</td>
<td>t-V-t</td>
<td>t-V-m</td>
</tr>
<tr>
<td>2f</td>
<td>i-V-t</td>
<td>i-V-mt</td>
</tr>
<tr>
<td>3m</td>
<td>i-V</td>
<td>V-n</td>
</tr>
<tr>
<td>3f</td>
<td>t-V</td>
<td>V-nt</td>
</tr>
</tbody>
</table>

Table 8: Tashlhit φ-agreement (Applegate 1958:27)

<table>
<thead>
<tr>
<th></th>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>i-V-n</td>
<td>V-n-in</td>
</tr>
<tr>
<td>2m</td>
<td>i-V-n</td>
<td>V-n-in</td>
</tr>
<tr>
<td>2f</td>
<td>i-V-n</td>
<td>V-n-in</td>
</tr>
<tr>
<td>3m</td>
<td>i-V-n</td>
<td>V-n-in</td>
</tr>
<tr>
<td>3f</td>
<td>i-V-n</td>
<td>V-n-in</td>
</tr>
</tbody>
</table>

Table 9: Tashlhit AA (Applegate 1958:27)

- Partial neutralization is significant because it indicates that there must be some successful agreement with the extracted DP in the syntax.
- In Tashlhit, at least the [number] feature of the extracted subject must be available to Agree in the syntax so that these features can be spelled out in the morphology.

- This fact is an important explanandum for any general theory of φ-agreement neutralization under Ā-extraction.
- In terms of the current theory, the difference between total and partial neutralization rests in the impoverishment rules active in a given language.
  - Total neutralization → total φ-impoverishment in the context of [Â]
  - Partial neutralization → partial φ-impoverishment in the context of [Â]

- For Kabyle, the relevant total impoverishment rule is given in (26):

(26) Kabyle partial φ-impoverishment

\[ \phi \rightarrow \emptyset / [\_, \text{Â, Agr}] \]

- For Tashlhit, the relevant partial impoverishment rule is given in (27):

(27) Tashlhit partial φ-impoverishment

\[ \text{[person, gender]} \rightarrow \emptyset / [\_, \text{Â, Agr}] \]

- Aside: In both languages, I treat the participle suffix as the spell out of the Ā-feature that remains after impoverishment.

(28) Kabyle/Tashlhit Ā-exponence

\[-n \rightarrow [Â] / [\_, \text{Â, Agr}]\]

- ‘Participle’ is a misnomer, the suffix is only found in the context of subject Ā-extraction, and verb forms bearing the suffix show no nominal properties.

- For syntactic accounts of anti-agreement, partial neutralization → partial syntactic agreement.

- How would a syntactic account of anti-agreement handle the Tashlhit effect? Recall the logic of these accounts:

(29) \[ \phi \beta \ldots \phi \alpha \ldots \]

\[ \alpha \text{ is a position normally targeted for φ-agreement, } \beta \text{ is the landing site of } \text{Â-movement} \]

For Tashlhit, a syntactic account could posit that:

- [person]/[gender] agreement are only accessible to the relevant φ-probe(s) when the DP occupies α,
- while [number] agreement is accessible to the relevant φ-probe(s) even if the DP does not occupy α

Other patterns of partial neutralization are not as simple as the Tashlhit example, however.

**Ghadamès** (Berber, Libya) has three participle forms – masculine singular, feminine singular, and plural. Compare these to the full agreement forms.

<table>
<thead>
<tr>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1m</td>
<td>V-ány</td>
</tr>
<tr>
<td>1f</td>
<td>n-V-át</td>
</tr>
<tr>
<td>2m</td>
<td>t-V-ôt</td>
</tr>
<tr>
<td>2f</td>
<td>t-V-ôt</td>
</tr>
<tr>
<td>3m</td>
<td>i-V</td>
</tr>
<tr>
<td>3f</td>
<td>t-V</td>
</tr>
</tbody>
</table>

Table 10: Ghadamès φ-agreement (Kossmann 2013:95)

The participle never expresses agreement for [person]. When the extracted subject is plural, the verb has only one possible form → V-n-in

When the extracted subject is singular, the verb has two possible forms → i-V-án (masculine) or t-V-át (feminine)

The current account captures this pattern with impoverishment rules that are conditioned not only by the presence of an Ā-feature, but also by the presence of specific φ-features.

(30) **Ghadamès partial φ-impoverishment**

a. [person] → Ø / [__, Ā, Agr]

b. [number] → Ø / [__, +part, Ā, Agr]

**Ben Tey** (Dogon, Mali) presents another example of this type of partial neutralization.

- Subjects normally control person and number agreement on the verb.
- Subject focus triggers anti-agreement.
- The full agreement and anti-agreement paradigms are given in tables 12-13.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V-ý</td>
<td>V-ː-ý</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>V-ː-w</td>
<td>V-ː-ː-w</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>V</td>
<td>V-(y)k</td>
<td></td>
</tr>
</tbody>
</table>

Table 12: Ben Tey φ-agreement (Heath 2013)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>V</td>
<td></td>
</tr>
</tbody>
</table>

Table 13: Ben Tey AA (Heath 2013)

[person] agreement is always suppressed.

[+part] agreement is only suppressed if the focused subject is 1st/2nd person.

Assuming that that 1st person and 2nd person are distinguished from 3rd person minimally with the feature [+part] (Harley and Ritter 2002; Nevins 2007, a.o.), the Ben Tey pattern can be derived through two partial φ-impoverishment rules.

(31) **Ben Tey partial φ-impoverishment**

a. [person] → Ø / [__, Ā, Agr]

b. [number] → Ø / [__, +part, Ā, Agr]

- In both Ghadamès and Ben Tey, it is the presence both of an Ā-feature and of specific φ-feature that triggers anti-agreement.
- The requirement of a specific φ-feature requirement makes these patterns challenging to syntactic analyses of anti-agreement.
- Again recall the underlying logic of syntactic accounts:

(32) \[ [\sigma \beta \ldots \mid \sigma \ldots \alpha \ldots ] \]

\( \alpha \) is a position normally targeted for φ-agreement, \( \beta \) is the landing site of Ā-movement

In order to derive the Ben Tey pattern, we would have to say something like the following:

- [+part] agreement is only possible when a DP is at α,
- [number] agreement is possible even if a DP is not at α,
- but [number] agreement is impossible if the DP could have agreed for [+part] and is not located at α
- In other words, DPs with [+part] can only agree from α, while DPs with [+part] agree from another position.

The impoverishment rules proposed for Ben Tey in (31) must be crucially ordered, with (31b) preceding (31a).
In order to derive the Ghadamès pattern, we would have to say something like the following:

- [**person**] agreement is only possible when a DP is at $\alpha$,
- [**number**] agreement is possible even if a DP is not at $\alpha$,
- [**gender**] agreement is possible even if a DP is not at $\alpha$ but only when a DP is [-plural]
- ... but this limitation on [**gender**] agreement is only in play when the DP is not at $\alpha$

I suggest that the morphological alternative is a much more straightforward way of explaining the Ben Tey and Ghadamès patterns.

It is known that $\phi$-features are capable of triggering impoverishment of other $\phi$-features (Noyer 1992, 1997).

Therefore, it should be possible for $\phi$-features to condition such deletion in the context of Ā-features.

4 The independence of impoverishment and Ā-exponence

- We have now seen examples of morphological variation along two dimensions
  1. How many $\phi$-feature contrasts are impoverished in the Ā-context?
  2. Is there morphology that realizes the Ā-feature copied by the $\phi$-probe

- Whether a language has total or partial $\phi$-impoverishment is independent of whether or not that language exhibits Ā-exponence.

- Both Abaza and Kabyle have morphemes that realizing this Ā-feature, (33).

(33) **Abaza and Tarifit** $\rightarrow$ total impoverishment, Ā-feature realized

  a. **Abaza**
      
      a-fa'čǝʕʷ 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. **Kabyle**
      
      iqcin-nni i [i-wala-n] / *wala-n* Mohand
      woman-dem C [3sg.m-see-ptcp / see-3pl.m] Mohand
      ‘the boys who saw Mohand’

- The northern Italian dialect Fiorentino does not realize the Ā-feature responsible for impoverishment, (34).

(34) **Fiorentino** $\rightarrow$ 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) |

- All three languages, however, exhibit total $\phi$-impoverishment.

- 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 (35).

(35) **Tashlhit** $\rightarrow$ partial impoverishment, Ā-feature realized

| irgazen li kerz-n-in igran men C rel plow-ptcp-pl fields |
| ‘the men who have worked the fields’ (Aspinon 1953:166) |

- In the Bantu language 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, (36).

(36) **Lubukusu** $\rightarrow$ partial impoverishment, Ā-feature not realized

  a. Nise o-(w/”n)-onak-e kumulyango kuno 1sg cl2.c-3l.aa/1sg.sbj g-damage-pst cl3.door cl3.dem
      ‘It is I who damaged the door’ (Diercks 2010:133)

  b. Nifwe ba-(w/”khw)-onak-e kumulyango kuno 1pl cl2.c-3l.2b/1pl.sbj g-damage-pst cl3.door cl3.dem
      ‘It is us who damaged the door’ (Diercks 2010:133)

- Assuming that 1st persons are specified for as class 1/2 (gender A singular or gender A plural), (36) involves the impoverishment of [**person**] without deleting [**gender, number**] (Diercks 2010; Henderson 2013)

- It is also clearly the case that some languages do not neutralize $\phi$-features in the context of Ā-features.

- An example of one such language is Mexican Spanish, where full subject-verb $\phi$-agreement is present on the verb in the relative clause part of a subject cleft.

(37) **Mexican Spanish subject cleft** $\rightarrow$ full $\phi$-agreement, no Ā-exponence

| Soy yo que estoy aquí be.1sg 1sg C be.1sg here |
| ‘It’s me who is here.’ |

- The full agreement between the verb *estoy* and the clefted 1sg pronoun can be accounted for by saying that Mexican Spanish does not have an active $\phi$-impoverishment rule in the context of Ā-features
A clear prediction of the theory of Ā-sensitive agreement developed in this talk is the following.

(38) There should be languages that exhibit Ā-exponence while lacking ϕ-impoverishment in the context of Ā-features.

There is at least one such language → Kobiana (Atlantic, 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.

Kobiana subject-verb agreement (John Merrill, p.c.)

a. No subject focus
   ą-ndékk-i
   2sg-walk-pfv
   'You walked.'

b. Subject focus
   áyì ęe-ndékk-ǝn-i
   2sg.foc-walk-foc-pfv
   'It’s you who walked.'

In (39a), the 2sg subject is not focused and the verb bears the subject agreement prefix ą-. In (39b), the 2sg subject is focused and the subject agreement prefix is changed to ęe-.

The paradigms found with non-focused subjects and focused subjects are given in tables 14 and 15, respectively (both from Voisin 2015:368).

<table>
<thead>
<tr>
<th>SG</th>
<th>PL</th>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 má- ngée-</td>
<td>1 mé- ngéena-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 á- káa-</td>
<td>2 ęe- káana-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 á- náà-</td>
<td>3 áma- náäná-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 14: Kobiana φ-agreement

Table 15: Kobiana subject focus agreement

There are two crucial observations with regards to the two φ-agreement paradigms above.

1. The subject focus agreement paradigm in table 15 retains all φ-feature contrasts present in the basic agreement paradigm in table 14.

2. The Kobiana subject focus φ-agreement paradigm is not transparently segmentable.

In the current theory, I argue that this means Kobiana has two distinct sets of φ-agreement VI, shown in (40a).

(40) Kobiana agreement VI

a. má-, á-, á-, ngée-, káa-, náà- ↔ [φ, Agr]

b. mée-, ęe-, áma-, ngéena-, káana-, náäná- ↔ [φ, Ā, Agr]

In (40b), the second set realizes a set of φ-features and an Ā-feature, as shown in (40b), and will block insertion of the first set of VIs whenever the subject bears an Ā-feature.

If my analysis of Kobiana is on the right track, then we can fill in completely a two by three way typology of the interaction between ϕ-impoverishment and Ā-exponence.

<table>
<thead>
<tr>
<th></th>
<th>1 ϕ-impoverishment</th>
<th>2 Ā-exponence</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Abaza</td>
<td>Tashlhit</td>
<td>Kobiana</td>
</tr>
<tr>
<td>Fiorentino</td>
<td>Lubukusu</td>
<td>Spanish</td>
</tr>
</tbody>
</table>

Table 16: Typology of Ā-exponence and impoverishment

In fact, table 16 obscures the important point that in languages like Abaza, there may be instances Ā-sensitive agreement morphology that exhibit Ā-exponence and some that do not.

This supports the conclusion that these properties are independent dimensions of variation.

The typology in table 16 falls out naturally if Ā-sensitivity is simply a property of φ-probes in general, and is not subject to crosslinguistic variation.

(41) 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, and involves variation in both the presence of certain morphological rules and in the presence of certain types of vocabulary items.

1. Languages vary as to whether impoverishment applies in the context of Ā-features, and when it does, how many features are impoverished.

2. Languages vary as to whether there are vocabulary items that spell out the Ā-features that are copied to φ-probes when it interacts with a Ā-marked DP.

These types of variation are independently needed in the model of morphology employed here (DM).

Judgement from a native speaker of Mexican Spanish from Oaxaca.

In addition, the verb in (39b) takes the focus suffix -ǝn, which is limited to subject focus clauses (John Merrill, p.c.).
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References

Caponigro, Ivano, and Maria Polinsky. 2015. Relative embeddings: A Circassian puzzle for the syntax/semantics interface. Ms., UCSD.
5 Appendix: Asymmetries in φ-feature impoverishment

- When one looks closely at the patterns of φ-feature syncretism in the context of Ā-features attested crosslinguistically, the number of possible patterns turns out to be very small.

- The attested patterns of leveling in a survey of 63 languages (Baier 2018) are summarized in table 17.

<table>
<thead>
<tr>
<th>Normal Agreement</th>
<th>Anti-Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person Gender Number</td>
<td>Person Gender Number</td>
</tr>
<tr>
<td>Type 1</td>
<td>✓ (✓) ✓</td>
</tr>
<tr>
<td>Type 2</td>
<td>✓ (✓) ✓</td>
</tr>
<tr>
<td>Type 3</td>
<td>✓ ✓ ✓</td>
</tr>
</tbody>
</table>

Table 17: Patterns of impoverishment

- **Type 1 impoverishment** → all normal agreement features are neutralized
- **Type 2 impoverishment** → all normal agreement features other than NUMBER are neutralized
- **Type 2 impoverishment** → only PERSON agreement is neutralized, while GENDER and NUMBER agreement remain indexed

- The generalization that emerges from table 17 is that φ-contrast neutralization under Ā-sensitive agreement is constrained by an implicational hierarchy, given in (42).

\[(42) \text{Feature Impoverishment Hierarchy (FIH)}\]

\[\text{PERSON} \ll \text{GENDER} \ll \text{NUMBER}\]

- Given the theory of anti-agreement as φ-impoverishment triggered by Ā-features, the Feature Impoverishment Hierarchy (FIH) dictates that an impoverishment rule that deletes feature X must also delete all features to the left of X.

- See (Baier 2018) for a proposal regarding the structure of φ-features that derives (42)