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 $φ_1$ 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.

- 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)*

wəy a-xac'a   də-{z_j/*l_j}-bàz   **a-jɣab**$_j$
that DEF-boy 3SG.AN.ABS-{WH.ERG/*3SG.F.ERG}-saw DEF-girl

'the girl who saw that boy'   (Hewitt 1979:61)

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[1] Abbreviations 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, PFV = perfective, PL = plural, PRS = present, PST = past, PTCP = participle, REL = relative, SBJ = subject, SG = singular, WH = wh-related morpheme.

(4)   *Kabyle[2] (Berber, Algeria)*

taqcict-nni i { **i**-wala-**n**   / ***t**-wala } Mohand
woman-DEM C { 3SG.M-see-PTCP / 3SG.F-see } Mohand

'the girl who saw Mohand'

- 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 and specialized 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)

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

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

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Evidence from variation

- 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
       [uφ]    ...
               DP      ...
                   [φ, Ā]
```
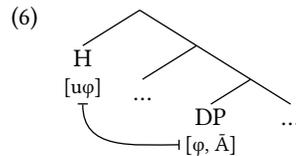
- MORPHOLOGY
  When Ā-features and φ-features cooccur in the same feature bundle, partial or total **impoverishment** of the φ-features may take place.

(7) *Bundle on H*
    [H, φ, Ā]

(8) *Impoverishment*
    [φ] → Ø / [__, H, Ā]

- 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.

		① φ-impoverishment		
		TOTAL	PARTIAL	NONE
② Ā-exponence	YES	Abaza	Tashlhit	Kobiana
	NO	Fiorentino	Lubukusu	Spanish

Table 1: Typology of Ā-exponence and impoverishment

- 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*

TP
T [uφ]
...
...
vP
DP$_{ERG}$
v [uφ]
VP
V
DP$_{ABS}$
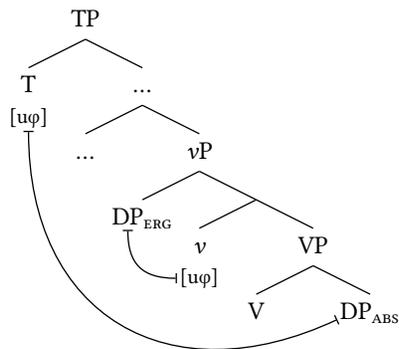
> ▷ The lower φ-probe on v agrees with the external argument in Spec-vP.[3]
>
> ▷ The higher φ-probe on T agrees with the next highest DP inside vP.
>
> ▷ Because ergative agreement is not present in intransitive clauses, I assume that only transitive v hosts a φ-probe.

- I assume that heads bearing φ-probes bear a feature that marks them as agreement heads. I will call this feature [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*
  a. [T, φ, Agr]
  b. [v, φ, Agr]

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

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

  a. a-čʷwal **dzač'ʷəya**$_i$ **yə**$_i$-ta-wa
     DEF-sack what ABS.WH-in-PRS
     'What is in the sack?'   (O'Herin 2002:252)

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

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

  a. **dəzda**$_i$ s-axč'ʲa **zə**$_i$-ɣəč'ʲ
     who 1SG-money ERG.WH-steal
     'Who stole my money?'   (O'Herin 2002:252)

  b. a-fač'ʲəʕʷ a-finǰʲan a-pnə **dəzda**$_i$ y-na-**z**$_i$-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)

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

	1	2F	2M	3F	3M	3INAN	Ā
SG	s-	b-	w-	l-	y-	a-	z-
PL	h-	ʃʷ-	ʃʷ-	r-	r-	r-	z-

Table 2: 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 3: Abaza absolutive agreement (O'Herin 2002:63)

- **Observation 1:** The two wh-agreement morphemes differ in their relationship to the rest of the paradigm.

  ▷ Ergative wh-agreement z- **does not** occur elsewhere in the paradigm.

  ▷ Absolutive wh-agreement y- **does** occur elsewhere in the paradigm.

- **Observation 2:** 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 syncretism 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.
  a. The prefix y- is a morphological default.
  b. The prefix z- spells out the feature [Ā]

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[3]See Coon (2017) for arguments that ergative agreement is low, derived by Spec-Head agreement with v.
[4]I take the [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).

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

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

Table 4: Types of Abaza agreement VIs

- The agreement VIs *z*- and *y*- do not spell out φ-features.

  ▷ The prefix *z*- spells out [Ā], [Agr], and [v].

  (14) *Abaza* wh-*agreement*
       z- ↔ [Ā, Agr, v]

  ▷ The prefix *y*- spells out just [Agr].

  (15) *Abaza default agreement*
       y- ↔ [Agr]

※ I argue that a feature bundle including an Ā-feature like the one in (14) is an option because of the way φ-probes interact with the features on a goal that they agree with.

Ingredients of the account

1. XPs that undergo Ā-movement bear some kind of Ā-feature. I assume that Ā-features on DPs are merged on D and both Ā-features and φ-features percolate to the DP level.

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

   DP$_{[φ, Ā]}$

   D$_{[φ, Ā]}$ ...
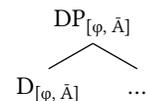
2. Following Deal (2015, 2016), a probe's *interaction* condition(s) and *satisfaction* condition(s) may be distinct.

   (17) *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 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 φ-features (Φ) and the set of Ā-features (Ā) belong to a larger set of features, $\mathcal{F}$.

   (18) a. $\mathcal{F}$ = {Φ, Ā}

        b. There is no variation in interaction conditions – φ-probes and Ā-probes both have the same interaction conditions: $\mathcal{F}$.

- Consider the consequences of (17) and (18) for a φ-probe on a head H that finds a DP that bears both [φ] and [Ā].

  (19)

  H
  [uφ]   ...
         DP   ...
         [φ, Ā]
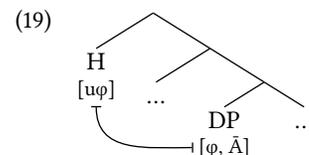
  ▷ [uφ] on H searches in its c-command domain for features and finds the DP bearing [φ] and [Ā].

  ▷ The probe interacts with both of these features, and therefore copies back both sets of features to H.

- Therefore, a head with [uφ] that Agrees with a DP with [Ā] in Abaza will always have (at least) the features in (20).

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

  $$[\ \varphi,\ \bar{A},\ \text{AGR},\ \left\{ \begin{array}{c} v \\ T \end{array} \right\} \ ]$$

- However, if (20) is the form of a φ-probe at the point of Vocabulary Insertion, the prefixes *z-* and *y-* should never be inserted, even in Ā-contexts where this indeed occurs.

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

  (21)   *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 VIs 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 postsyntactic 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)   *Abaza φ-feature impoverishment*
         $[\varphi] \rightarrow \emptyset\ /\ [\_\_, \bar{A}, \text{Agr}]$

- 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.

- Consider how this analysis derives ergative *wh*-agreement with a 3sg feminine DP.[5]

  (23)   *Derivation of* wh-*agreement with a 3sg feminine ergative argument*

         a.   *Agree in the Syntax*   b.   *In the morphology*
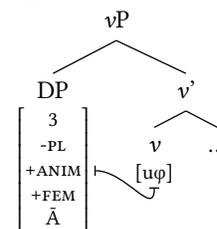
                                           i.   Feature bundle on *v*:

                                                [3, -PL, +ANIM, +FEM, Ā, *v*, Agr]

                                           ii. Impoverishment:

                                                [3̶,̶ ̶-̶P̶L̶,̶ ̶+̶A̶N̶I̶M̶,̶ ̶+̶F̶E̶M̶, Ā, *v*, Agr] → [Ā, *v*, Agr]

                                           iii. Vocabulary Insertion:

                                                [z- ↔ [Ā, Agr, *v*]]

                                                y- ↔ [Agr]

                                                (l- ↔ [-PL, +FEM, Agr, *v*])

- 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

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[5]I assume that the set of φ-features is decomposed into an articulated set of binary valued features. For Abaza, the relevant features are: [±PART(ICIPANT)], [±AUTH(OR)], [±PL(URAL)], [±ANIM(ATE)], [±FEM(ININE)]

	① φ-impoverishment		
	TOTAL	PARTIAL	NONE
② Ā-exponence YES	Abaza		
NO	Abaza		

Table 5: Typology of Ā-exponence and impoverishment

- 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.

  ② This structural configuration blocks Ā-movement of that DP.

  ③ For such a DP to be extracted, it must not enter into the structural configuration required for φ-agreement.

  ④ Because the DP does not enter into this configuration, no φ-agreement occurs.

- In other words, anti-agreement should arise in the scenario in (24), where α is a position normally targeted for φ-agreement, and β is the landing site of Ā-movement.

(24) $[_{XP}\ \beta\ \dots\ [_{YP}\ \dots\ \alpha\ \dots\ ]]$
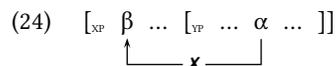
- Syntactic accounts of anti-agreement differ on the specifics of the nature of the constraint employed.

  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)**[6]

     ▷ 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.

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 (25) with the Tashlhit (Berber, Morocco) data in (26). In Tashlhit, *number agreement is retained* under subject extraction, while *person and gender agreement are suppressed.*

(25)   *Kabyle (Berber, Algeria)*

   iqcicin-nni   i   { **i**-wala-**n**   / *wala-**n**   }   Mohand
   woman-DEM   C   { 3SG.M-see-PTCP / see-3PL.M }   Mohand

   'the boys who saw Mohand'

---

[6]See Baier (2017) for further arguments against an anti-locality based approach to anti-agreement not discussed in this talk.

(26)   *Tashlhit (Berber, Morroco)*

irgazn$_i$ nna   ffegh-**n-*(in)**   —$_i$
man.PL   C$_{REL}$ left-PFV-{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.[7]

	SG	PL
1	V-ʁ	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 6: Kabyle φ-agreement

	SG	PL
1	i-V-n	i-V-n
2M	i-V-n	i-V-n
2F	i-V-n	i-V-n
3M	i-V-n	i-V-n
3F	i-V-n	i-V-n

Table 7: Kabyle particple

	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 8: Tashlhit φ-agreement

	SG	PL
1	i-V-n	V-**n-in**
2M	i-V-n	V-**n-in**
2F	i-V-n	V-**n-in**
3M	i-V-n	V-**n-in**
3F	i-V-n	V-**n-in**

Table 9: Tashlhit AA

• 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.

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[7]Tashlhit paradigms from Applegate (1958:27).

13

▷ **Total neutralization** → total φ-impoverishment in the context of [Ā]

▷ **Partial neutralization** → partial φ-impoverishment in the context of [Ā]

• For Kabyle, the relevant total impoverishment rule is given in (27):

(27)   *Kabyle partial φ-impoverishment*
        [φ] → Ø / [__, Ā, Agr]

• For Tashlhit, the relevant partial impoverishment rule is given in (28):

(28)   *Tashlhit partial φ-impoverishment*
        [PERSON, GENDER] → Ø / [__, Ā, Agr]

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

(29)   *Kabyle/Tashlhit Ā-exponence*
        -n ↔ [Ā] / [__, 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.[8]

• 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:

(30)   [$_{XP}$ β ... [$_{YP}$ ... α ...]]

> α is a position normally targeted for φ-agreement, β is the landing site of Ā-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.

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[8]See Drouin (1996) and Kossmann (2003, 2012) for comparative discussion of participles in Berber. See Baier (2018) for further discussion of this analysis of *-n*.

14

- **Ghadamès** (Berber, Libya) has three participle forms – masculine singular, feminine singular, and plural. Compare these to the full agreement forms (Kossmann 2013:91–95).

	SG	PL
1M	V-ăʕ	n-V-ăt
1F	V-ăʕ	n-V-măt
2M	t-V-ət	t-V-ăm
2F	t-V-ət	t-V-măt
3M	i-V	V-ăn
3F	t-V	V-năt

Table 10: Ghadamès φ-agreement

	SG	PL
M	i-V-ăn	V-n-in
F	t-V-ăt	V-n-in

Table 11: Ghadamès participle forms

▷ 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-ăn** (masculine) or **t-V-ăt** (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.*

(31) **Ghadamès partial φ-impoverishment**
  a. [PERSON] → Ø / [__, Ā, Agr]
  b. [GENDER] → Ø / [__, +PL, 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.

	SG	PL
1	V-ỳ	V-:-ỳ
2	V-ẁ	V-:-ẁ
3	V	V-(y)ὲ

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

	SG	PL
1	V	V
2	V	V
3	V	V-(y)ὲ

Table 13: Ben Tey AA (Heath 2013)

▷ [PERSON] agreement is always suppressed.

▷ [NUMBER] 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.[9]

(32) **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:

(33) $[_{\text{XP}} \; \beta \; \ldots \; [_{\text{YP}} \; \ldots \; \alpha \; \ldots \;]]$

α is a position normally targeted for φ-agreement, β 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.

- 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 α,

  ▷ [NUMBER] agreement is possible even if a DP is not at α,

  ▷ [GENDER] agreement is possible even if a DP is not at α **but** only when a DP is [-PLURAL]

  ▷ … but this limitation on [GENDER] agreement is only in play when the DP is not at α

---

[9]The impoverishment rules proposed for Ben Tey in (32) must be crucially ordered, with (32b) *preceding* (32a).

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

  ▷ It is known that φ-features are capable of triggering impoverishment of other φ-features (Noyer 1992, 1997).

  ▷ Therefore, it should be possible for φ-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 φ-feature contrasts are impoverished in the Ā-context?

  ② Is there morphology that realizes the Ā-feature copied by the φ-probe

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

- Both Abaza and Kabyle have morphemes that realize this Ā-feature, (34).

(34) *Abaza and Tarifit → total impoverishment, Ā-feature realized*

   a. *Abaza*

   a-fačʲəʕʷ   a-finjʲan   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)

   b. *Kabyle*

   iqcicin-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 inmpoverishment, (35).

(35) *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)

- All three languages, however, exhibit total φ-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 (36).

(36) *Tashlhit → partial impoverishment, Ā-feature realized*
   irgazen lli   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, (37).

(37) *Lubukusu → partial impoverishment, Ā-feature not realized*

   a. Nise o-{**w**/***n**}-onak-e   kumulyango kuno
      1sg   CL1.C-{CL1.AA/1SG.SBJ}-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-{CL2.SBJ/1PL.SBJ}-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), (37) 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 φ-features 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.

(38) *Mexican Spanish subject cleft → full φ-agreement, no Ā-exponence*[10]
   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 φ-impoverishment rule in the context of Ā-features

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[10]Judgement from a native speaker of Mexican Spanish from Oaxaca.

- A clear prediction of the theory of Ā-sensitive agreement developed in this talk is the following

    (39)   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.

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

    a. *No subject focus*   b. *Subject focus*

    á-ndékk-i   áyì **ée**-ndékk-ən-i
    2SG-walk-PFV   2SG 2SG.FOC-walk-FOC-PFV

    'You walked.'   'It's you who walked.'

    ▷ In (40a), the 2SG subject is not focused and the verb bears the agreement prefix *á-*.

    ▷ In (40b), the 2SG subject is focused and the subject agreement prefix is changed to *ée-*.[11]

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

	SG	PL
1	má-	ngée-
2	á-	káa-
3	à-	náà-

Table 14: Kobiana φ-agreement

	SG	PL
1	mé-	ngéena-
2	ée-	káana-
3	áma-	náàná-

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 (41a)

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(41)   *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 (41a).

▷ The second set realizes a set of φ-features and an Ā-feature, as shown in (41b), 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.

		① φ-impoverishment		
		TOTAL	PARTIAL	NONE
② Ā-exponence	YES	Abaza	Tashlhit	Kobiana
	NO	Fiorentino	Lubukusu	Spanish

Table 16: Typology of Ā-exponence and impoverishment

- 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.

(42)   *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.

- Variation arises from how a given language's morphology manipulates and realizes feature bundles that include [φ] and [Ā].

    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).

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[11]In addition, the verb in (40b) takes the focus suffix *-ən*, which is limited to subject focus clauses (John Merrill, p.c.).

Appendix A: 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 are summarized in table 17 (Baier 2018).

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

Table 17: Patterns of syncretisms in the context of Ā-features

- ▷ **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 (43).

(43) *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].

- See Baier (2018) for a proposal regarding the structure of φ-features that derives (43)

Appendix B: Distribution of Ā-sensitive phi-agreement

> **Prediction of the theory**
>
> Variation in which instances of agreement in a clause exhibit Ā-sensitive phi-agreement effects should reduce to which probes are targeted by φ-impoverishment.

- In the current theory, this 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.

  - ▷ An impoverishment 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.

- Consider the abstract scenarios in (44) on the next page. 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.

(44) *Possibilities for Ā-sensitive agreement with two probe-goal pairs*

  a. *Scenario 1: Neither DP has [Ā], X and Y copy [φ]*
      $$[\ ... \ X_{[u\varphi]} \ ... \ DP^1_{[\varphi]} \ ... \ [\ ... \ Y_{[u\varphi]} \ ... \ DP^2_{[\varphi]} \ ... \ ]]$$
      (φ) ; (φ)

  b. *Scenario 2: DP₁ has [Ā], X copies [φ, Ā]*
      $$[\ ... \ X_{[u\varphi]} \ ... \ \mathbf{DP^1_{[\varphi, \bar{A}]}} \ ... \ [\ ... \ Y_{[u\varphi]} \ ... \ DP^2_{[\varphi]} \ ... \ ]]$$
      (φ+Ā) ; (φ)

  c. *Scenario 3: DP₂ has [Ā], Y copies [φ, Ā]*
      $$[\ ... \ X_{[u\varphi]} \ ... \ DP^1_{[\varphi]} \ ... \ [\ ... \ Y_{[u\varphi]} \ ... \ \mathbf{DP^2_{[\varphi, \bar{A}]}} \ ... \ ]]$$
      (φ) ; (φ+Ā)

- Example (44) exhausts the possibilities of cases where zero or one of the DPs targeted for agreement have an Ā-feature, in a clause that includes two φ-probes and two DPs. [12]

---

[12] This sets aside the possibility of derivations in which multiple DPs host Ā-features. In (44), 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.

- In all three scenarios, the φ-probe on X agrees with DP$_1$ and the φ-probe on Y agrees with DP$_2$.

  ▷ **Scenario 1**, (44a) → neither DP has [Ā]. Control scenario.

  ▷ **Scenario 2**, (44b) → DP$_1$ has an Ā-feature. Probe on X copies back both [φ+Ā].

  ▷ **Scenario 3**, (44c) → DP$_2$ has an Ā-feature. Probe on Y copies back both [φ+Ā].

- **Question** ⇒ Which of these scenarios display an Ā-sensitivity effect?

  ▷ If **both scenario 2 and 3** display such an effect, then the simplest analysis is to posit an impoverishment rule that targets heads bearing [Agr].

  ▷ If **only scenario 2** displays an effect, then the impoverishment rule targets heads of category [X].

  ▷ 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 18.

	Ā-sensitivity effect		
	Scenario 2 (X)	Scenario 3 (Y)	Impoverishment rule
Outcome 1	✓	✓	[φ] → Ø / [__, Ā, Agr]
Outcome 2	✓	✗	[φ] → Ø / [__, Ā, X]
Outcome 3	✗	✓	[φ] → Ø / [__, Ā, Y]

Table 18: Possible outcomes for scenarios 2 and 3 in (44)

- The prediction above is confirmed by the All φ-probes generalization, shown in (45).

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

- To show that this is the case, I approach this question from the perspective of agreement alignment (**ergative-absolutive** and **nominative-accusative**).

- In terms of the abstract configurations in <multi-scenarios>, alignment emerges from the way that probes X and Y patterns with regards to the arguments of transitive and intransitive clauses

  ▷ **Nominative-Accusative:** X agrees with transitive/intransitive subjects; Y agrees with transitive objects (or vice versa).

  ▷ **Ergative-Absolutive:** X agrees with intransitive subjects and transitive objects; Y agrees with transitive subjects (or vice versa).

- This approach to agreement alignment is summarized table 19

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

Table 19: Alignment with two probes

- There are three possible distributions of anti-agreement for each alignment type, as shown in table 20.

	Target probe(s)	Anti-agreement?			Language
		A	S	O	
Nom-Acc	X+Y	✓	✓	✓	Zulu (Doke 1997)
	X	✓	✓	✗	Palauan (Georgopoulos 1991)
	Y	✗	✗	✓	Ndebele (A. Pietraszko, p.c.)
Erg-Abs	X+Y	✓	✓	✓	Abaza (O'Herin 2002)
	X	✓	✗	✗	Semelai (Kruspe 2004)
	Y	✗	✓	✓	Selayarese (Finer 1997)

Table 20: Possible distributions of anti-agreement

  ▷ ✓ indicates the argument in question *does* trigger an Ā-sensitive agreement effect when it has an Ā-feature

  ▷ ✗ indicates the argument in question *does not* trigger an Ā-sensitive agreement effect, even when it has an Ā-feature.

―――――――◦◦◦∞◦◦◦―――――――

Acknowledgements

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