Distributing Semitic verbal affixes across modules
Matthew Hewett / The University of Chicago
Workshop on Afroasiatic Affixes
12 March 2022

1. Introduction

Discontinuous agreement in Semitic can be exemplified by Ṣanʿānī Arabic: the affixes in (1) are discontinuous, and those in (2) are discontinuous and nonadjacent.

(1) Suffix Conjugation

<table>
<thead>
<tr>
<th>1st person singular</th>
<th>2nd person singular</th>
<th>3rd person singular</th>
</tr>
</thead>
<tbody>
<tr>
<td>-gambär</td>
<td>-ti- gambär-ī</td>
<td>-gambar-ū</td>
</tr>
</tbody>
</table>

(2) Prefix Conjugation

<table>
<thead>
<tr>
<th>1st person singular</th>
<th>2nd person singular</th>
<th>3rd person singular</th>
</tr>
</thead>
<tbody>
<tr>
<td>-gambär</td>
<td>-ti- gambär-ī</td>
<td>-gambar-ū</td>
</tr>
</tbody>
</table>

Several questions arise in light of forms such as these:

1. Quantity of terminals question: How many syntactic terminals are there corresponding to the (often multiple) positions of φ-exponence (e.g. 1, 2, or more)?
2. Stem-affix ordering question: What regulates the relative ordering possibilities between stems and affixes (e.g. why do we find gambär-t-ū and ti-gambär-ī but not *ti-ū-gambär)?
3. Affix-affix ordering question: What regulates the relative ordering possibilities between affixes and other affixes (e.g. why do we find gambär-t-ū and ti-gambär-ī but not *gambär-ū-t or *ū-gambär-ī)?

Roughly speaking, there are two types of post-syntactic approaches to answering these questions:

- Vocabulary-centric approach: the quantity and position of verbal agreement affixes is fixed largely by a single operation—Vocabulary Insertion (see Noyer 1992, Halle 1997, and Harbour 2008).
- Modular approach: the quantity and position of verbal agreement affixes is determined by the interaction of several post-syntactic modules in a serial architecture (à la Arregi and Nevins 2012).

A modular approach to Semitic discontinuous agreement

- Semitic verbal agreement begins life bundled on a single node, and is broken up post-syntactically.
  - Quantity of verbal agreement affixes is determined by Fission and Doubling.
  - Position of verbal agreement affixes is determined by morphotactic constraints and repairs.
- Overlapping φ-featural exponence in discontinuous agreement (e.g. ti-gambär-ī ‘you (f.sg.) sit’ (2-sit·F.SG)) requires feature copying, not (just) cyclic insertion coupled with allomorphy.
- Fission and displacement feed allomorphy in Semitic discontinuous agreement, which operates over linear adjacency, hence neither can be conflated with VI: Fission < Displacement < VI.

N.B. Decomposing suffix conjugation affixes like this must be argued for on a language-by-language basis.

- When discontinuous, leftmost affixes typically mark person, rightmost mark number/gender.
- Discontinuous agreement may evince ‘pure’ splits, as in ti-gambär-ī·ayn ‘you (f.pl.) sit’ (2-sit·F.PL), or ‘impure’ splits, as in ti-gambär-ī·ayn ‘you (f.sg.) sit’ (2-sit·2-F.SG) with overlapping exponence.

Similar person-based splits are found in other languages, e.g. in Basque.

(5) Lekeitio (Biscayan Basque) dative pronominal clitics (adapted from Arregi and Nevins 2012: 122)

<table>
<thead>
<tr>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-t/-da</td>
</tr>
<tr>
<td>2</td>
<td>-tu</td>
</tr>
<tr>
<td>3</td>
<td>-ko/-tz</td>
</tr>
</tbody>
</table>

- Person-marking clitic on the left
- Elsewhere plural clitic -e on the right

Roadmap:

§2 The basic pattern across Semitic: Splitting in the 2nd and 3rd persons
§3 Two formalisms for Fission: Accounting for the basic pattern
§4 Impure discontinuities: Contextual allomorphy or multiple exponence?
§5 Adjacency constraints on allomorphy in discontinuous agreement support a modular approach
§6 Metafission: A more general argument for a modular approach
§7 Complicating the basic pattern: Doubling in 1PL

Roughly speaking, there are two types of post-syntactic approaches to answering these questions:

- Vocabulary-centric approach: the quantity and position of verbal agreement affixes is fixed largely by a single operation—Vocabulary Insertion (see Noyer 1992, Halle 1997, and Harbour 2008).
- Modular approach: the quantity and position of verbal agreement affixes is determined by the interaction of several post-syntactic modules in a serial architecture (à la Arregi and Nevins 2012).

A modular approach to Semitic discontinuous agreement

- Semitic verbal agreement begins life bundled on a single node, and is broken up post-syntactically.
  - Quantity of verbal agreement affixes is determined by Fission and Doubling.
  - Position of verbal agreement affixes is determined by morphotactic constraints and repairs.
- Overlapping φ-featural exponence in discontinuous agreement (e.g. ti-gambär-ī ‘you (f.sg.) sit’ (2-sit·F.SG)) requires feature copying, not (just) cyclic insertion coupled with allomorphy.
- Fission and displacement feed allomorphy in Semitic discontinuous agreement, which operates over linear adjacency, hence neither can be conflated with VI: Fission < Displacement < VI.

N.B. Decomposing suffix conjugation affixes like this must be argued for on a language-by-language basis.

- When discontinuous, leftmost affixes typically mark person, rightmost mark number/gender.
- Discontinuous agreement may evince ‘pure’ splits, as in ti-gambär-ī·ayn ‘you (f.pl.) sit’ (2-sit·F.PL), or ‘impure’ splits, as in ti-gambär-ī·ayn ‘you (f.sg.) sit’ (2-sit·2-F.SG) with overlapping exponence.

Similar person-based splits are found in other languages, e.g. in Basque.

(5) Lekeitio (Biscayan Basque) dative pronominal clitics (adapted from Arregi and Nevins 2012: 122)

<table>
<thead>
<tr>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-t/-da</td>
</tr>
<tr>
<td>2</td>
<td>-tu</td>
</tr>
<tr>
<td>3</td>
<td>-ko/-tz</td>
</tr>
</tbody>
</table>

- Person-marking clitic on the left
- Elsewhere plural clitic -e on the right

Roadmap:

§2 The basic pattern across Semitic: Splitting in the 2nd and 3rd persons
§3 Two formalisms for Fission: Accounting for the basic pattern
§4 Impure discontinuities: Contextual allomorphy or multiple exponence?
§5 Adjacency constraints on allomorphy in discontinuous agreement support a modular approach
§6 Metafission: A more general argument for a modular approach
§7 Complicating the basic pattern: Doubling in 1PL

Roughly speaking, there are two types of post-syntactic approaches to answering these questions:

- Vocabulary-centric approach: the quantity and position of verbal agreement affixes is fixed largely by a single operation—Vocabulary Insertion (see Noyer 1992, Halle 1997, and Harbour 2008).
- Modular approach: the quantity and position of verbal agreement affixes is determined by the interaction of several post-syntactic modules in a serial architecture (à la Arregi and Nevins 2012).

A modular approach to Semitic discontinuous agreement

- Semitic verbal agreement begins life bundled on a single node, and is broken up post-syntactically.
  - Quantity of verbal agreement affixes is determined by Fission and Doubling.
  - Position of verbal agreement affixes is determined by morphotactic constraints and repairs.
- Overlapping φ-featural exponence in discontinuous agreement (e.g. ti-gambär-ī ‘you (f.sg.) sit’ (2-sit·F.SG)) requires feature copying, not (just) cyclic insertion coupled with allomorphy.
- Fission and displacement feed allomorphy in Semitic discontinuous agreement, which operates over linear adjacency, hence neither can be conflated with VI: Fission < Displacement < VI.

N.B. Decomposing suffix conjugation affixes like this must be argued for on a language-by-language basis.

- When discontinuous, leftmost affixes typically mark person, rightmost mark number/gender.
- Discontinuous agreement may evince ‘pure’ splits, as in ti-gambär-ī·ayn ‘you (f.pl.) sit’ (2-sit·F.PL), or ‘impure’ splits, as in ti-gambär-ī·ayn ‘you (f.sg.) sit’ (2-sit·2-F.SG) with overlapping exponence.

Similar person-based splits are found in other languages, e.g. in Basque.

(5) Lekeitio (Biscayan Basque) dative pronominal clitics (adapted from Arregi and Nevins 2012: 122)

<table>
<thead>
<tr>
<th>SG</th>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-t/-da</td>
</tr>
<tr>
<td>2</td>
<td>-tu</td>
</tr>
<tr>
<td>3</td>
<td>-ko/-tz</td>
</tr>
</tbody>
</table>

- Person-marking clitic on the left
- Elsewhere plural clitic -e on the right

Roadmap:

§2 The basic pattern across Semitic: Splitting in the 2nd and 3rd persons
§3 Two formalisms for Fission: Accounting for the basic pattern
§4 Impure discontinuities: Contextual allomorphy or multiple exponence?
§5 Adjacency constraints on allomorphy in discontinuous agreement support a modular approach
§6 Metafission: A more general argument for a modular approach
§7 Complicating the basic pattern: Doubling in 1PL
3. Two formalisms for Fission: Accounting for the basic pattern

The CENTRAL PUZZLE: assuming that subject φ-agreement is bundled on a single node in the syntax (see Appendix B for supporting arguments), why can agreement be discontinuous in Semitic? Enter, Fission.

The signature of Fission

It’s one kind of breakdown in the one-to-one mapping between syntactic terminals and exponents.

Two formalisms for Fission have been proposed in previous work within Distributed Morphology (DM). (Arregi and Nevins 2012; see also Halle and Marantz 1993 and Calabrese 2003 for related proposals).

Fission rules make no reference to vocabulary entries because Fission logically precedes VI.

Fission is parasitic on a language’s inventory of vocabulary entries and must operate with/after VI.

Fission splits up certain features and copies all others (here, ϕ) into two output nodes prior to VI (Arregi and Nevins 2012; see also Halle and Marantz 1993 and Calabrese 2003 for related proposals).

Lower features displace to the right because of two structure preservation principles in linearization.

• Linearization must preserve previously established linear adjacency relations (*ti-š-gambir).

• Linearization must map φ-internal hierarchy onto linear precedence (*š-š-gambir).

Since person dominates number, this predicts that person should precede number cross-linguistically.

3.1. Vocabulary-centric approach: Fission is iterated VI (Harbour 2008)

I’ll focus on Harbour (2008) (see Harbour 2016 for an update compatible with Mirror Theory). Harbour assumes φ-features have internal structure: person dominates number/gender (see also Campbell 2012).

Languages with Fission (e.g. Semitic) use vocabulary entries matching sub-φ-trees, e.g. [φ-PERS], [NUM].

Languages without Fission (e.g. English) can only match the full φ-structure.

1st person agreement is monomorphic and prefixal

Additional assumptions are necessary to derive the contrast between the prefix and suffix conjugations (see Harbour 2016: 162–168).

Fissioned/Discontinuous agreement in the 2nd/3rd persons flanks the verb stem

Lower features displace to the right because of two structure preservation principles in linearization.

• Linearization must preserve previously established linear adjacency relations (*ti-š-gambir).

• Linearization must map φ-internal hierarchy onto linear precedence (*š-š-gambir).

Since person dominates number, this predicts that person should precede number cross-linguistically.

‘Person left, number right’ generalization in discontinuous agreement (Harbour 2008: 185; see also Trommer 2003, 2008, Campbell 2012, and Arregi and Nevins 2012)

a. S.s. c'er -t
b. S.s. Bostonea – i-uxn –e
1- write –PL
2- go –PL-PST

‘We write’ (Georgian; Hewitt 1995: 200) adapted from Arregi 1999: 249)

Postsyntactic rule ordering: (background: Fission is iterated VI)

Fission, VI < Displacement
3.2. Modular approach: Fission and displacement are autonomous

Successive cyclic head movement yields a left branching complex head, with subject agreement on Asp/T.

\[ \text{Asp/T} \]

\[ \sqrt{+V \cdot \text{Voice+Asp}} \]

Fission creates two nodes out of one terminal in response to language-specific morphotactic constraints.

(15) Semitic non-author Fission rule

\[ \text{CAT: Asp/T} \]

\[ \alpha \text{ singular} \]

\[ \phi \]

Constraint triggering non-author Fission

\[ \text{CAT: Asp/T} \]

\[ \alpha \text{ singular} \]

\[ \phi \]

(16) Feature preservation under Fission

\[ \text{ Orthogonal features } \phi \text{ are copied into both output nodes in Fission. } \]

1st person agreement is monomorphemic because (15) fails to apply with [+author]

(18) Şan‘ānî Arabic gambar-nā ‘we sat’ (sat-1.PL) (background: Fission is autonomous)

T V1 \[ \text{Asp} \]

\[ \sqrt{+V \cdot \text{Voice+Asp}} \]

\[ \text{CAT: T} \]

\[ +\text{author} \]

\[ +\text{participant} \]

\[ +\text{singular} \]

\[ +\text{feminine} \]

2nd/3rd person agreement is discontinuous due to (15)

(19) Şan‘ānî Arabic gambar-tū ‘you (m.pl.) sat’ (sat-2-M.PL) (background: Fission is autonomous)

T V1 \[ \text{VERB} \]

\[ \text{CAT: T} \]

\[ +\text{participant} \]

\[ +\text{singular} \]

\[ +\text{feminine} \]

Prefixes result from displacement, modeled via Generalized Reduplication, a formalism uniting morphological Metathesis and Doubling (Harris and Halle 2005, Arregi and Nevins 2012, 2018).
SUMMARY OF COMPETING HYPOTHESES:

* Vocabulary-centric approach (Fission is iterated VI): Fission, VI < Displacement

* Modular approach (Fission is autonomous): Fission < Displacement < VI

5. Adjacency constraints on allomorphy in discontinuous agreement support a modular approach

**NOVEL GENERALIZATION:** Linear adjacency constrains affixal allomorphy in discontinuous agreement.

\[ (30) \ A \ast X_{\phi}\ast V O R B \ast Y_{\phi} \ast \bar{i} \]

where A, but not B, can condition the form of prefixal \( X_{\phi} \)
and B, but not A, can condition the form of suffixal \(-Y_{\phi}\).

(See Appendix A for additional data that bear this generalization.)

**Linear adjacency in suffixal allomorphy: Mehreyet second feminine singular suffix (-\( t\)-~\( \bar{i} \))

The form of the 2.\( F.S G \) suffix in Mehreyet (Semitic, Oman) depends on its linear position: -\( \bar{i} \) before object clitics, -\( t \) elsewhere (Watson 2012: 202).

\[ (31) \ t\-b\-\( \bar{m} \-i\-t \) \ you (f.sg.) want’

a. t- \( \bar{m} \-i\-t \-\( \bar{a} \-n \) -an

2- want -2.\( F.S G \) -1.\( P.L.O B J \)

‘you (f.sg.) want us’

b. t- \( \bar{m} \-i\-t \-\( \bar{a} \-s \) -s

2- want -2.\( F.S G \) -3.\( F.S G . O B J \)

‘you (f.sg.) want it (f.sg.)’

**Modular approach: Autonomous fission & displacement feed VI, predicting suffixal allomorphy**

\[ (32) \ Mehreyet \ t\-b\-\( \bar{m} \-i\-t \-\( \bar{a} \-s \) (background: Fission is autonomous) \]

The form of the suffix is determined solely by reference to the features on the Fissioned node; impure discontinuities do not involve allomorphy.
Fission as iterated VI fails to predict feeding relationship between Fission, displacement and VI

(33) Mehreyyet \( t\)-ham-*∅* (background: Fission is iterated VI)

\[
\begin{array}{c}
\text{T} \\
\text{D} \\
\text{OBJ} \\
\text{SG, F}
\end{array}
\quad \leftrightarrow \quad \begin{array}{c}
* \text{ham} \ D^0 \\
\text{SG} \quad \text{F}
\end{array}
\quad \leftrightarrow \quad \begin{array}{c}
\text{T} \\
\text{D}^0 \\
\text{T}
\end{array}
\]

(34) Suffixal vocabulary entries in competition

a. \([\text{SG, F} \leftrightarrow ∅ / \text{T}] \quad \text{D}^0 \quad \text{T}
\]

b. \([\text{SG, F} \leftrightarrow \text{I} / \varphi] \quad \text{T} \quad \text{D}^0 \quad \text{T}
\]

**Problem:**

Allomorphy of discontinuous agreement affixes is never surface long-distance in Semitic (see (30))? (34a) predicts, ceteris paribus, that prefixal allomorphy could be sensitive to right-peripheral material.

**Linear adjacency in prefixal allomorphy: Argobba third person prefix (y-∅-)**

The form of the third person prefix in Argobba of Shonke and T’ollaha (Semitic, Ethiopia) depends on its linear position: ∅- in indicative word-initial position, y-∅- elsewhere (Wetter 2010: 169).

(35) *Third person indicative and jussive agreement*

a. ∅- srbr -ell ∅ (>srbrull)

3. break.IND.IPFPV -AUX -3.M.SG

‘he breaks’

b. y- srbr (>yisbr)

3. break.JUSS

‘he shall break’

c. mm- y- srbr (>immisbr)

REL- 3. break.IND

‘(the one) who breaks’

(Wetter 2010: 169, (137a, d, f))

**N.B.** y- deletion is morphological, not strictly phonological; cf. deletion of the second person prefix \( t \), which triggers optional [i]-epenthesis:

(36) *Second person indicative agreement*

\( t \)- srbr -ll -x (>srbrllx-srbrllx)

2. break.IND.IPFPV -AUX -2.M.SG

‘you break’

(Wetter 2010: 167, (134a))

Argobba prefixes thus support the generalization that allomorphy of discontinuous agreement affixes is conditioned only by linearly adjacent material.
Because Many Ethiopian Semitic languages (mostly spoken in the Gurage Zone) exhibit discontinuous first person agreement in Ethiopian Semitic is due to

1. Complicating the basic pattern: Doubling in 1PL

The Modular approach to Semitic discontinuous agreement captures:

- Impure discontinuities
- Linear adjacency constraints on allomorphy
- ‘Metafission’

We can decompose the analysis for discontinuous agreement into the following components:

- Fission determines the quantity of terminals, and predicts the suffix conjugation.
- Generalized Reduplication predicts the position of terminals in the prefix conjugation.

We can see these operations acting independently in Semitic in cases where Generalized Reduplication gets us both the quantity and position of terminals.

7. Complicating the basic pattern: Doubling in 1PL

Many Ethiopian Semitic languages (mostly spoken in the Gurage Zone) exhibit discontinuous first person plural agreement. Interestingly, prefixes and suffixes both realize [x author].

(41) Gumer (West Gurage) (42) Wolane (East Gurage) negative relative compound imperfect + imperfective √kf ‘open’ object ‘him’, √br ‘break’ (Meyer 2006: 127) (Vollmin 2017: 122, Table 57)

We get (44) as a special case of (43) in Gumer, Wolane, etc.

1PL doubling ([43]) is more specific than the Metathesis rule in (23), hence the former will bleed the latter.

Upholt: 1PL doubling instantiates a different kind of discontinuous agreement in Semitic. Generalized Reduplication, independently needed to account for discontinuous agreement in the prefix conjugation for 2nd/3rd persons, also captures 1PL doubling.

8. Conclusion

- Semitic discontinuous agreement provides strong evidence for a modular view of postsyntax in which certain operations (e.g. Fission, Displacement) logically precede others (e.g. VI).
- Linear adjacency is a prerequisite for conditioning allomorphy in discontinuous agreement, paralleling findings from the literature on other instances of allomorphy (e.g. Embick 2010, Arregi and Nevins 2012, Ostrove 2015, Merchant and Pavlou 2017).
- ‘Discontinuous agreement’ is a non-unified phenomenon in Semitic. Some instances result from Fission (e.g. the basic pattern), while others result from Doubling (e.g. Garuge).

8. References


Modern Standard Arabic and Biblical Hebrew second masculine plural suffixes

The form of the 2.M.PL suffix in the suffix conjugation depends on the presence vs. absence of object clitics: the long form occurs before object clitics, and the short form otherwise.

(48) Modern Standard Arabic 2.M.PL allomorphy
a. katab -t -um
wrote -2 -M.PL
'you (m.pl.) wrote'

b. katab -t -ān -ha
wrote -2 -M.PL -3.F.SG.OBJ
'you (m.pl.) wrote it (f.sg.)'

(49) Biblical Hebrew 2.M.PL allomorphy
a. wa- hašālī -t -em
and.ASP- brought.up -2 -M.PL
'you will bring up' (Exod 13.19) 'you brought us up' (Num 20.5)

Neither language has a general process of final long-vowel reduction (even if, something else would need to be said about the loss of -ēm in the Hebrew pre-clitic allomorph in (49b)).

(50) a. Modern Standard Arabic
li- ta- klub -u:
in.order-2 write.SBJ -M.PL
'in order for you (m.pl.) to write'

b. Biblical Hebrew
ti- šmār -ū
2- will.guard -M.PL

Neither language has a general process of final long-vowel reduction (even if, something else would need to be said about the loss of -ēm in the Hebrew pre-clitic allomorph in (49b)).

Argobba of Shonke and T’ollaha (Semitic, Ethiopia) third plural suffix: -n~-∅

The form of the third plural prefix conjugation suffix depends on its linear position: -∅ before object clitics, -n elsewhere.

(51) a.  ASSERT YRID -n -ill -re (yawdallyr)
3- tell.IPFLV -3.PL -AUX -3.PL
'they tell' (Wetter 2010: 171)

b.  ASSERT YRIYD -∅ -yyrm -ill -re (yawidiyyrmllry)
3- tell.IPFLV -3.PL -3.PL.OBJ -AUX -3.PL
'they tell them' (Wetter 2010: 171)

The form of the second plural agreement suffix depends on its linear position: -∅ before object clitics, -n elsewhere.

(52) a.  ASSERT AVID -n -ill -uxum (tawdalluxum)
2- tell.IPFLV -2.PL -AUX -2.PL
'you (pl.) tell' (Wetter 2010: 171)

b.  ASSERT AVID -∅ -yyrm -ill -uxum (tawdialyymlluxum)
2- tell.IPFLV -2.PL -3.PL.OBJ -AUX -2.PL
'you tell them' (Wetter 2010: 392)

The specific -∅ only occurs before direct object clitics; before applicative clitics ((53)) and the negative suffix -m ((54)), -n appears.

(53) a.  ASSERT -mrt’ -u -ill -o -ill -re (mert’ullollyr)
'they come to his advantage' (Wetter 2010: 190, (196))

b.  ASSERT -mrt’ -u -bb -o -ill -re (mert’ubbolllyr)
'they come to his disadvantage' (Wetter 2010: 190, (194))

(54) a.  ASSERT YVID -∅ -m (yawdimum)
NEG-3- tell.IPFLV -3.PL -NEG
'they don’t tell' (Wetter 2010: 407)

The null 3.PL suffix is not forced by syllabic requirements of the language:
⇒ the -∅ form triggers (regular) epenthesis of an i vowel.
⇒ Near minimal pairs of verbs without the complicating auxiliaries still exhibit the same contrast.

(55) a.  ASSERT AVID -u -yyrm (yawdyyyrm)
tell.IMPV -2.PL -3.PL.OBJ
'tell (pl) them!' (imperative)

b.  ASSERT YVID -∅ -yyrm (yawdyyrm)
3- tell.IMV -3.PL -3.PL.OBJ
'they shall tell them' (jussive) (Wetter 2010: 394)

The null form is not due to postsyntactic Obliteration (see Arregi and Nevins 2007).
⇒ Third plural subject agreement features trigger allomorphy of the following object clitic (-yyrm).

(56) Cf. the 3.PL object clitic -eḥḥem after verbs bearing 3.M.SG subject agreement
y-avid -∅ -eḥḥem -rill -∅ (yawideḥḥemel)
'he tells them’ (Wetter 2010: 394)

Wolane (Semitic, Ethiopia) first person plural prefix: -y~-l

The form of the first person plural prefix depends on its linear position: -y- in affirmative indicative word-initial position, -l- elsewhere.

(57) Wolane affirmative indicative non-past main verb √sbr ‘break’ (Meyer 2006: 97)
In Yimas, a non-Austronesian language of New Guinea, the first and second person ergative paucal suffix is -ne.

Third person prefixes, though homophonous with first person prefixes in (57), do not alternate with -l-:

Wolane first person verbs in subordinate contexts

a. t- l- hēd when I- go.IPVF
b. t- l- hēd -ne when I- go.IPVF -1PL
‘when I go’
‘when we go’ (Meyer 2006: 110–111)

Wolane first person verbs in negative relative clauses

a. yr- ?a- l- srbr -ey -ā -hʷ goz
‘the thing which I do not break’

b. yr- ?a- l- srbr -ne -y -ān goz
‘the thing which he doesn’t break’ (Meyer 2006: 127)

Third person prefixes, though homophonous with first person prefixes in (57), do not alternate with -l-:

Wolane third person masculine singular verbs in subordinate contexts

t- i- hēd when 3- go.IPVF
‘when he goes’ (Meyer 2006: 110–111)

Wolane third person masculine singular verbs in negative relative clauses

yr- ?a- y- srbr -ry -ān goz
‘the thing which he doesn’t break’ (Meyer 2006: 127)

Yimas [+participant] paucal suffix: -ŋkt~-ŋkan

In Yimas, a non-Austronesian language of New Guinea, the first and second person ergative paucal suffix is -ŋkt when word-final, and -ŋkan otherwise (see Harbour 2008: 200).

(62) a. pu- kay- cay- c -ŋkt
  3.PL.ABS- I.PL.ERG- see -PERF-PC
  ‘We few saw them’
b. ta- kay- cay- c -ŋkan -um
  NEG- I.PL.ERG- see -PERF-PC -3.PL.ABS
  ‘We few didn’t see them’
c. pia- kay- i- c -ŋkan -mpun
talk- I.PL.ERG- tell -PERF-PC -3.PL.DAT
  ‘We few told them’ (Foley 1991: 216, 217, 221)

Algonquian central endings

n-endings occur before inanimate peripheral endings, w-endings occur before animate ones, illustrated with Passamaquoddy-Maliseet (thanks to Will Oxford (pers. comm.) for pointing out these facts to me).

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Stem</th>
<th>Theme sign</th>
<th>Central ending</th>
<th>Peripheral ending</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. pu-</td>
<td>-om</td>
<td>'3INAN object'</td>
<td>-m '3SG'</td>
<td>-a '1'</td>
</tr>
<tr>
<td>b. kpun-</td>
<td>-om</td>
<td>'3INAN (animate)'</td>
<td>-m '3SG'</td>
<td>-a '1'</td>
</tr>
<tr>
<td>c. kpun-</td>
<td>-om</td>
<td>'3INAN (inanimate)'</td>
<td>-m '3SG'</td>
<td>-a '1'</td>
</tr>
</tbody>
</table>

Table 1: Passamaquoddy-Maliseet verbal template (data from Francis and Leavitt 2008: 665)

(63) pun- 'place INAN', n-endings
(64) takam- 'hit ANIM', w-endings
(65) mawak & (Francis and Leavitt 2008: 665)
(66) mannuk & (Francis and Leavitt 2008: 668)

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Stem</th>
<th>Theme sign</th>
<th>Central ending</th>
<th>Peripheral ending</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. n</td>
<td>-om</td>
<td>'3INAN object'</td>
<td>-m '3SG'</td>
<td>-a '1'</td>
</tr>
<tr>
<td>b. k</td>
<td>-om</td>
<td>'3INAN (animate)'</td>
<td>-m '3SG'</td>
<td>-a '1'</td>
</tr>
<tr>
<td>c. nt</td>
<td>-om</td>
<td>'3INAN (inanimate)'</td>
<td>-m '3SG'</td>
<td>-a '1'</td>
</tr>
<tr>
<td>d. nt</td>
<td>-om</td>
<td>'3INAN (inanimate)'</td>
<td>-m '3SG'</td>
<td>-a '1'</td>
</tr>
<tr>
<td>e. k</td>
<td>-om</td>
<td>'3INAN (animate)'</td>
<td>-m '3SG'</td>
<td>-a '1'</td>
</tr>
<tr>
<td>f. n</td>
<td>-om</td>
<td>'3INAN (animate)'</td>
<td>-m '3SG'</td>
<td>-a '1'</td>
</tr>
<tr>
<td>g. n</td>
<td>-om</td>
<td>'3INAN (animate)'</td>
<td>-m '3SG'</td>
<td>-a '1'</td>
</tr>
<tr>
<td>h. k</td>
<td>-om</td>
<td>'3INAN (animate)'</td>
<td>-m '3SG'</td>
<td>-a '1'</td>
</tr>
<tr>
<td>i. n</td>
<td>-om</td>
<td>'3INAN (animate)'</td>
<td>-m '3SG'</td>
<td>-a '1'</td>
</tr>
<tr>
<td>j. k</td>
<td>-om</td>
<td>'3INAN (animate)'</td>
<td>-m '3SG'</td>
<td>-a '1'</td>
</tr>
</tbody>
</table>

1Third person agreement is realized as -l- when syllabified as a syllable nucleus.
B. Against a syntacticization of discontinuous agreement


- **Suffix conjugation:** V moves successive-cyclically to Pers.
- **Prefix conjugation:** V moves successive-cyclically to T, Pers is a prefix (e.g. via Lowering; Embick and Noyer 2001).

<table>
<thead>
<tr>
<th>PersonP</th>
<th>Pers</th>
<th>TP</th>
<th>T</th>
<th>NumP</th>
<th>Num</th>
<th>GenP</th>
<th>Gen</th>
<th>VP</th>
</tr>
</thead>
</table>

**Problem #1:** Non-optimizing phonology in affix placement

<table>
<thead>
<tr>
<th>Arabic hollow roots (= roots with medial glides):</th>
</tr>
</thead>
<tbody>
<tr>
<td>(69) Syrian Arabic $\sqrt{\text{nwm}}$ ‘sleep’ (Cowell 1964)</td>
</tr>
<tr>
<td>a. nam -t-i</td>
</tr>
<tr>
<td>b. t- näm -i</td>
</tr>
<tr>
<td>2- sleep -2.F.SG</td>
</tr>
</tbody>
</table>

Reduction in the stem ($nām \rightarrow n$ām) is prosodic: a short vowel appears in the stem with C-initial agreement suffixes. The form of the stem must be determined after the position of the affixes has been determined. If so, then both (69a) and (69b) should underlyingly be something like: $nām$-t-i.

There seems to be no way to predict the difference between the prefix and suffix conjugations.

**Problem #2:** Phonologically identical affixes in different positions

<table>
<thead>
<tr>
<th>Phonologically identical affixes in the prefix and suffix conjugations can appear on different sides of the verb in many languages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(70) Tunisian Arabic $\sqrt{\text{kāsr}}$, Form II (XaYYaZ) ‘break’</td>
</tr>
<tr>
<td>a. kassar -t</td>
</tr>
<tr>
<td>broke -2</td>
</tr>
<tr>
<td>b. t- kassar</td>
</tr>
<tr>
<td>2- break</td>
</tr>
</tbody>
</table>

It is not clear how prosody could regulate affix positioning in these cases.

**Problem #3:** Prosodic affix placement fails to predict linear adjacency constraints on allomorphy

The prosodic account fails to predict the linearity generalization in (30): if affix placement occurs after Vocabulary Insertion, then the form of affixes should not be sensitive to linear position.

**Takeaway:** A purely syntactic approach to discontinuous agreement is insufficient for capturing even the basic pattern.

C. Against a purely prosodic account of affix placement in Semitic

**Prosodic affix placement hypothesis:** Semitic discontinuous agreement affixes are linearized by regular phonology (following ideas in Kastner 2019, 2020).

* Ostensibly accounts for the fact that there are some cross-Semitic phonological generalizations about the prosodic shapes of affixes, e.g. that only suffixes can have long vowels in many languages, whereas prefixes have short vowels.

**Problem #1:** Non-optimizing phonology in affix placement

<table>
<thead>
<tr>
<th>Arabic hollow roots (= roots with medial glides):</th>
</tr>
</thead>
<tbody>
<tr>
<td>(69) Syrian Arabic $\sqrt{\text{nwm}}$ ‘sleep’ (Cowell 1964)</td>
</tr>
<tr>
<td>a. nam -t-i</td>
</tr>
<tr>
<td>b. t- näm -i</td>
</tr>
<tr>
<td>2- sleep -2.F.SG</td>
</tr>
</tbody>
</table>

Reduction in the stem ($nām \rightarrow n$ām) is prosodic: a short vowel appears in the stem with C-initial agreement suffixes. The form of the stem must be determined after the position of the affixes has been determined. If so, then both (69a) and (69b) should underlyingly be something like: $nām$-t-i.

There seems to be no way to predict the difference between the prefix and suffix conjugations.

**Problem #2:** Phonologically identical affixes in different positions

<table>
<thead>
<tr>
<th>Phonologically identical affixes in the prefix and suffix conjugations can appear on different sides of the verb in many languages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(70) Tunisian Arabic $\sqrt{\text{kāsr}}$, Form II (XaYYaZ) ‘break’</td>
</tr>
<tr>
<td>a. kassar -t</td>
</tr>
<tr>
<td>broke -2</td>
</tr>
<tr>
<td>b. t- kassar</td>
</tr>
<tr>
<td>2- break</td>
</tr>
</tbody>
</table>

It is not clear how prosody could regulate affix positioning in these cases.

**Takeaway:** A purely prosodic fails to account for basic affix placement in, e.g. Arabic and fails to account for linear adjacency restrictions on allomorphy in Semitic discontinuous agreement ((30)).