Distributing Semitic verbal affixes across modules*

Matthew Hewett / The University of Chicago

Workshop on Afroasiatic Affixes
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1. Introduction

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

(1) **Suffix Conjugation**
gambar -**t** -**ū**
sat -**2** -**M.PL**
'You (m.pl.) sat.'

(2) **Prefix Conjugation**
ti- gambir -**ū**
2- sit -**M.PL**
'You (m.pl.) sit.'

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 *gambar-**t**-**ū*** and ***ti**-gambir-**ū*** but not **ti*-*ū*-*gambir*)?
3. Affix-affix ordering question: What regulates the relative ordering possibilities between affixes and other affixes (e.g. why do we find *gambar-**t**-**ū*** and ***ti**-gambir-**ū*** but not **gambar*-*ū*-*t* or **ū*-*gambir*-*ti*)?

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**-gambir-**ī*** 'you (f.sg.) sit' (2-sit-2.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.

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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

2. The basic pattern across Semitic: Splitting in 2nd and 3rd persons

Semitic prefix conjugation: 1st person is marked via prefixes, 2nd/3rd persons via prefixes and suffixes.

(3) Ṣanʕānī Arabic imperfect, $\sqrt{\text{gmbr}}$ 'sit' (Watson 1993: 56)

	SG	PL
1	**ʔa**-gambir	**ni**-gambir
2M	**ti**-gambir	**ti**-gambir-**ū**
2F	**ti**-gambir-**ī**	**ti**-gambir-**ayn**
3M	**yi**-gambir	**yi**-gambir-**ū**
3F	**ti**-gambir	**yi**-gambir-**ayn**

Discontinuous agreement

The suffix conjugation evinces the same 1 vs. 2/3 split, but agreement consists of contiguous suffixes.

(4) Ṣanʕānī Arabic perfect, $\sqrt{\text{gmbr}}$ 'sit' (Watson 1993: 56)

	SG	PL
1	gambar-**t**	gambar-**nā**
2M	gambar-**t**	gambar-**t**-**ū**
2F	gambar-**t**-**ī**	gambar-**t**-**ayn**
3M	gambar	gambar-**ū**
3F	gambar-**at**	gambar-**ayn**

Discontinuous agreement

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**-gambir-**ayn*** 'you (f.pl.) sit' (2-sit-F.PL), or 'impure' splits, as in ***ti**-gambir-**ī*** '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)

	SG	PL
1	-t/-da	-ku
2	-tzu	-tzu-**e**
3	-ko/-tz	-ko-**e**/-tz-**e**

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

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.

(6) **Syntax** → **Pronounced**

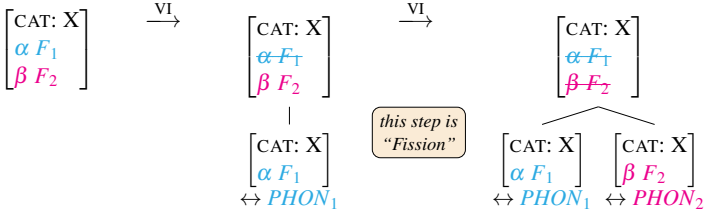
$$\begin{bmatrix}\text{CAT: X}\\ \alpha\ F_1\\ \beta\ F_2\end{bmatrix} \longrightarrow \textit{PHON}_1 \ \ldots\ \textit{PHON}_2$$

Two formalisms for Fission have been proposed in previous work within Distributed Morphology (DM).

Fission is iterated Vocabulary Insertion (VI)

Fission is **iterated VI** (Noyer 1992, Halle 1997, Trommer 1999, Müller 2006, Harbour 2008, among others), **cyclically matching all features** on a node with separate vocabulary entries.

(7)

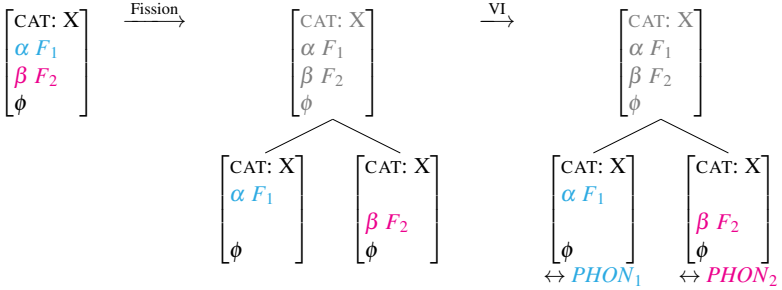


Fission is parasitic on a language's **inventory of vocabulary entries** and must operate with/after VI.

Fission is an autonomous rule

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).

(8)



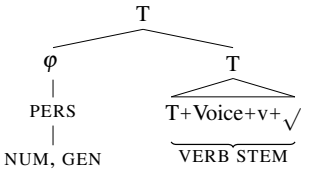
Fission rules make no reference to vocabulary entries because Fission logically precedes VI.

CLAIM: autonomous Fission rules in a modular postsyntax provide the best explanation of the basic pattern of discontinuous agreement in Semitic.

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).

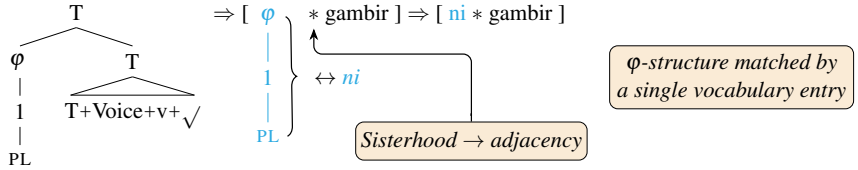
(9)



- 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 monomorphemic and prefixal

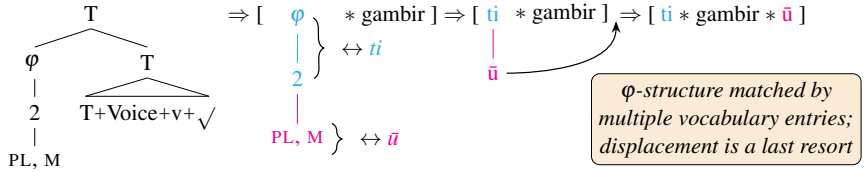
(10) Ṣanʕānī Arabic ***ni-gambir*** 'we sit' (**1.PL**-sit) (*background: Fission is iterated VI*)



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

(11) Ṣanʕānī Arabic ***ti-gambir-ū*** 'you (m.pl.) sit' (**2**-sit-**M.PL**) (*background: Fission is iterated VI*)



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

∗ Linearization must preserve previously established linear adjacency relations (**ti-ū-gambir*).

∗ Linearization must map φ-internal hierarchy onto linear precedence (**ū-ti-gambir*).

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

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

a. **v-** c'er **-t**
1- write **-PL**
'We write' (Georgian; Hewitt 1995: 200)

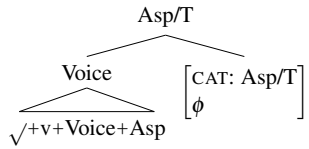
b. Suek Bostonea **s-** ixus **-e** -n
you.PL to Boston **2-** go **-PL** -PST
'You all were going to Boston' (Ondarru Basque; adapted from Arregi 1999: 249)

UPSHOT: (13) **Postsyntactic rule ordering:** (*background: Fission is iterated VI*)
Fission, VI ≺ Displacement

3.2. Modular approach: Fission and displacement are autonomous

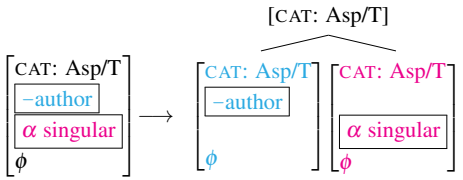
Successive cyclic head movement yields a left branching complex head, with subject agreement on Asp/T.

(14)



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

(15) **Semitic non-author Fission rule**



(16) **Constraint triggering non-author Fission**

*[−author, α singular]

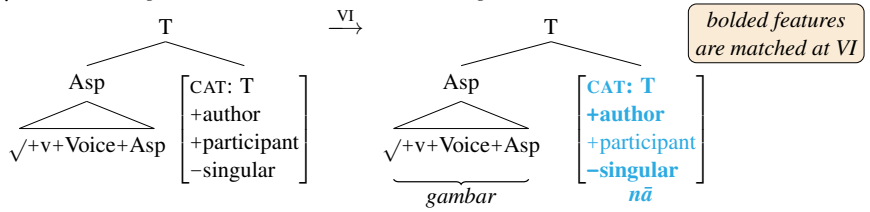
bans coexponence of [−author] *and* [α singular]

(17) **Feature preservation under Fission**

Orthogonal features ϕ are copied into both output nodes in Fission.

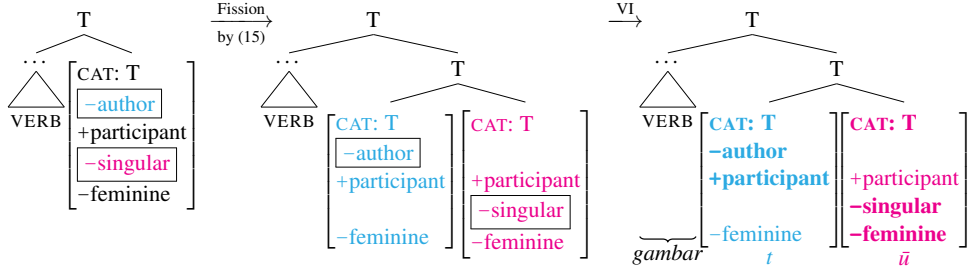
1st person agreement is monomorphemic because (15) fails to apply with [+author]

(18) Ṣanʕānī Arabic *gambar-**nā*** 'we sat' (sat-**1.PL**) (*background: Fission is autonomous*)



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

(19) Ṣanʕānī Arabic *gambar-**t**-**ū*** 'you (m.pl.) sat' (sat-**2**-**M.PL**) (*background: Fission is autonomous*)



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

(20) Full Reduplication: repeat all material inside ⟦ . . . ⟧.
⟦ A B ⟧ → ABAB

(21) Partial Reduplication

a. Delete the material after ⟩ in the second copy, doubling of A:
⟦ A ⟩ B ⟧ → ABA B → ABA

b. Delete the material before ⟨ in the first copy, doubling of B:
⟦ A ⟨ B ⟧ → A BAB → BAB

(22) Metathesis of A and B
⟦ A ⟩⟨ B ⟧ → A BA B → BA

(23) **Semitic prefix conjugation Metathesis** – inverts the verb and subject agreement

a. Structural description: [$_{\text{Asp}^{0\text{max}}/\text{T}^{0\text{max}}}$ √ v Voice Asp$_{[-\text{perf}]}$/T$_{[-\text{past}]}$

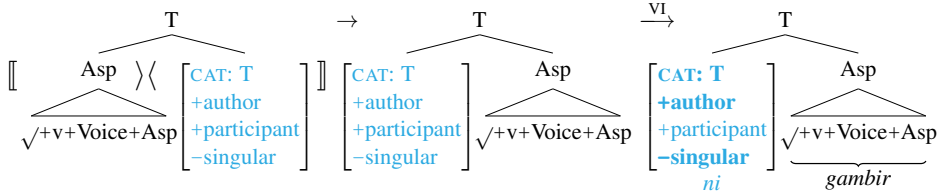
b. Structural change:

i. Insert ⟦ to the immediate left of √, and ⟧ to the immediate right of Asp$_{[-\text{perf}]}$/T$_{[-\text{past}]}$.

ii. Insert ⟩⟨ to the immediate left of Asp$_{[-\text{perf}]}$/T$_{[-\text{past}]}$.

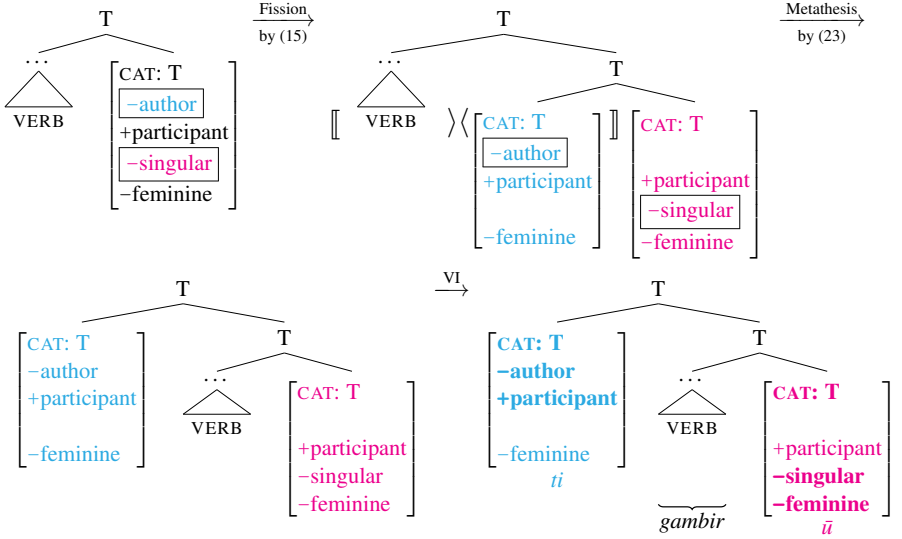
(24) **Constraint triggering prefix conjugation displacement: Asp/T-initiality**
Terminal Asp$_{[-\text{perf}]}$/T$_{[-\text{past}]}$ is initial within Asp$^{0\text{max}}$/T$^{0\text{max}}$.

(25) Ṣanʕānī Arabic *ni-gambir* 'we sit' (**1.PL**-sit) (*background: Fission is autonomous*)



2nd/3rd person is discontinuous *and* discontiguous when both (15) and (23) apply)

(26) Ṣanʕānī Arabic *ti-gambir-**ū*** 'you (m.pl.) will sit' (**2**-sit-**M.PL**) (*background: Fission is autonomous*)



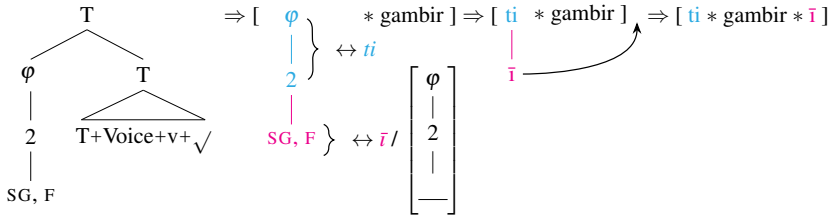
UPSHOT: (27) **Postsyntactic rule ordering:** (*background: Fission is autonomous*)
Fission ≺ Displacement ≺ VI

4. Impure discontinuities: Contextual allomorphy or multiple exponence?

Impure discontinuities involve apparent multiple exponence of φ-features across fissioned nodes.

Fission is iterated VI: impure discontinuities involve allomorphy

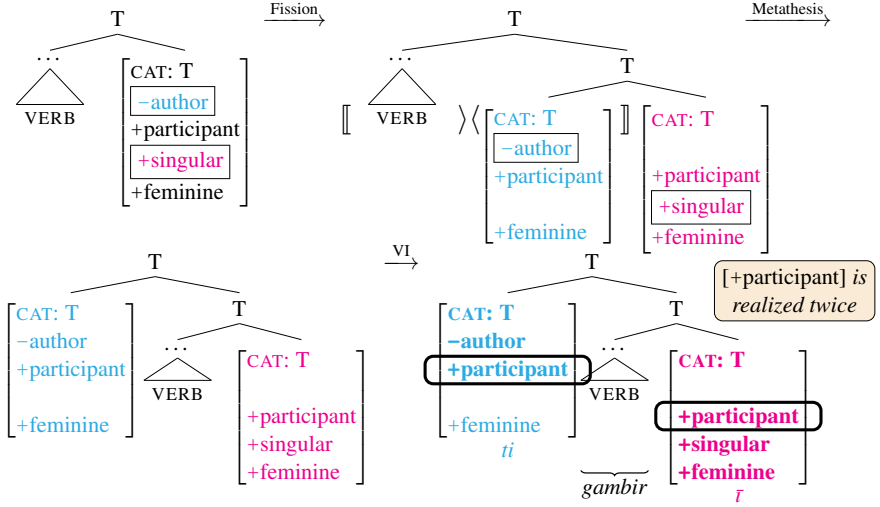
(28) Ṣanʕānī *ti-gambir-ī* 'you (f.sg.) sit' (2-sit-**2.F.SG**) (*background: Fission is iterated VI*)



The form of the suffix must be determined before displacement in order for -ī to match → predicts that allomorphy of (Semitic) agreement should always be determined at the prefixal position.

Fission is autonomous: impure discontinuities involve feature copying

(29) Ṣanʕānī *ti-gambir-ī* 'you (f.sg.) will sit' (2-sit-**2.F.SG**) (*background: Fission is autonomous*)



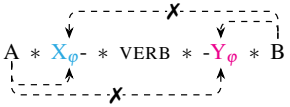
The form of the suffix is determined solely by reference to the features on the Fissioned node; impure discontinuities *do not* involve allomorphy.

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) 

where A, but not B, can condition the form of prefixal X_φ-, and B, but not A, can condition the form of suffixal -Y_φ.

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

Linear adjacency in suffixal allomorphy: Mehreyyet second feminine singular suffix (-ī∼-∅)

The form of the 2.F.SG suffix in Mehreyyet (Semitic, Oman) depends on its linear position: -∅ before object clitics, -ī elsewhere (Watson 2012: 202).

(31) *t-ḥaym-ī* 'you (f.sg.) want'

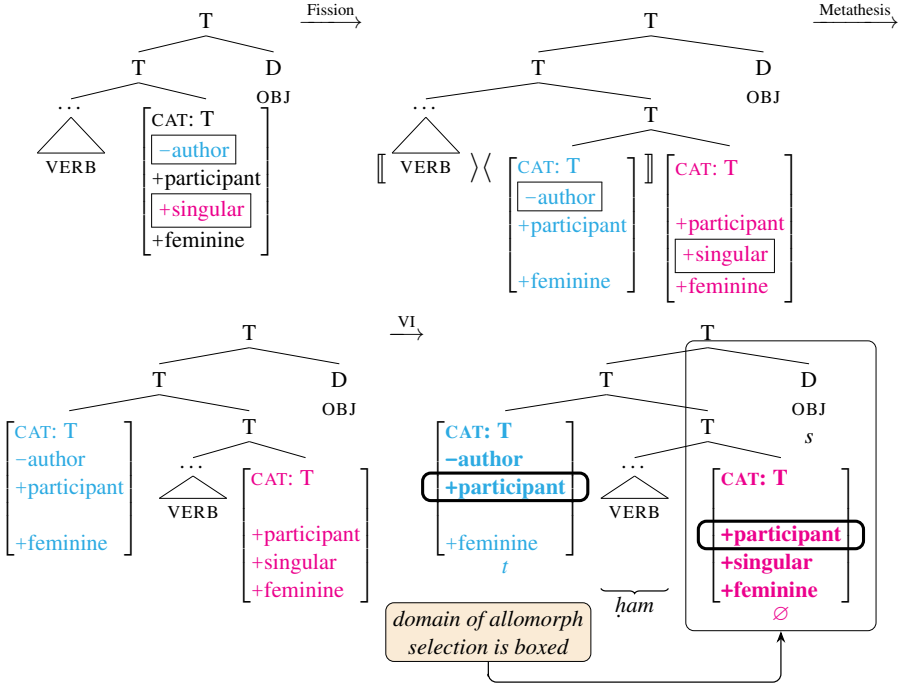
a. t- ḥam [-∅] -an
2- want -**2.F.SG** -1.PL.OBJ
'you (f.sg.) want us'

b. t- ḥam [-∅] -s
2- want -**2.F.SG** -3.F.SG.OBJ
'you (f.sg.) want it (f.sg.)'

- Not V-hiatus, cf (31b).
- Not stress/syllabification: missing vowel predicted to bear word-stress, e.g. **tḥa.ˈmīs*.
- Cf. *ðaxamīs* 'Thursday' (Watson 2012: 155).

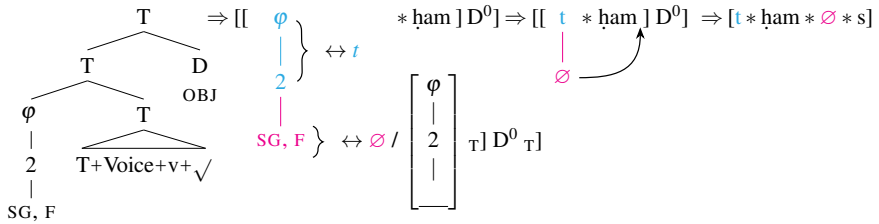
Modular approach: Autonomous fission & displacement feed VI, predicting suffixal allomorphy

(32) Mehreyyet *t-ḥam-∅-s* (*background: Fission is autonomous*)



Fission as iterated VI fails to predict feeding relationship between Fission, displacement and VI

(33) Mehreyyet *t-ḥam-∅-s* (*background: Fission is iterated VI*)



(34) Suffixal vocabulary entries in competition

a. [SG, F] ↔ ∅ / [φ 2] T] D^0 T]

b. [SG, F] ↔ *ī* / [φ 2]

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-*/*i-* elsewhere (Wetter 2010: 169).

(35) *Third person indicative and jussive agreement*

a. ∅- sɛbr -ɛll -∅ (>*sɛbrɛll*)
3- break.IND.IPFV -AUX -3.M.SG
'he breaks'

b. y- sbɛr (>*yɨsbɛr*)
3- break.JUSS
'he shall break'

c. mm- y- sɛbr (>*immisɛbir*)
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 [ɨ]-epenthesis:

(36) *Second person indicative agreement*
t- sɛbr -ll -x (>*ɨsɛbrɛllɛx*∼*sɛbrɛllɛx*)
2- break.IND.IPFV -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.

Two no-good hacks for the Vocabulary-centric approach

Hack #1: delay VI until *after* displacement (concerningly teleological, as this would require rules like 'displace a sub-φ-structure α only if α will later be matched by a vocabulary entry').

✘ Then we lose the account of impure discontinuities (cf. multiple exponence of 2nd person features). Displaced suffixes will be too far from the features of the prefix to yield secondary exponence.

Hack #2: invert φ and the verb, making φ sufficiently local to D^0, and retain Fission, VI ≺ Displacement.

✘ We lose any account of the 'person left, number right' affix ordering generalization in Fission.

✘ We still fail to explain why prefixes only show allomorphy conditioned by left-edge material (cf. (35)).

UPSHOT: The **Modular** approach provides a better account of discontinuous agreement in Semitic, esp. the linearity generalization for affixal allomorphy in (30).

6. *Metafission*: A more general argument for a modular approach

Metasyncretism: a syncretism that recurs in different paradigms. It's a generalization over several exponents, not an idiosyncratic property of particular vocabulary entries (see Bobaljik 2001, Harley 2008).

Gender is not marked in the 1st person in Modern Standard Arabic

(37) Modern Standard Arabic strong pronouns

	SG	DU	PL
1	*ʔan-aː*	*naḥnu*	*naḥnu*
2M	*ʔan-t-a*	*ʔan-t-um-aː*	*ʔan-t-um*
2F	*ʔan-t-i*	*ʔan-t-um-aː*	*ʔan-t-un-na*
3M	*h-uwa*	*h-um-aː*	*h-um*
3F	*h-iya*	*h-um-aː*	*h-un-na*

(38) Modern Standard Arabic possessive pronouns

	SG	DU	PL
1	*-iː*	*-naː*	*-naː*
2M	*-k-a*	*-k-um-aː*	*-k-um*
2F	*-k-i*	*-k-um-aː*	*-k-un-na*
3M	*-h-u*	*-h-um-aː*	*-h-um*
3F	*-h-aː*	*-h-um-aː*	*-h-un-na*

(39) Modern Standard Arabic jussive √ktb

	SG	DU	PL
1	*ʔa-ktub*	*na-ktub*	*na-ktub*
2M	*ta-ktub*	*ta-ktub-aː*	*ta-ktub-uː*
2F	*ta-ktub-iː*	*ta-ktub-aː*	*ta-ktub-na*
3M	*ya-ktub*	*ya-ktub-aː*	*ya-ktub-uː*
3F	*ta-ktub*	*ta-ktub-aː*	*ya-ktub-na*

(40) *Modern Standard Arabic first person gender impoverishment*
Delete gender features in a morpheme specified as [+author].

Metafission: a pattern of fission/discontinuity that recurs in different paradigms, not restricted to one set of vocabulary entries. Semitic non-author fission exhibits the same type of non-vocabulary-specific generality.

- 3rd person: *-h-*∼*y-*
- 2nd person: *-t-*∼*-k-*
- Nonsingular: *-um-*∼*-uː*

If discontinuous agreement were solely the result of Vocabulary Insertion, we would lose an account of the general nature of Fission (in the general Semitic case, barring coexponence of [+author] and [α singular]) (see Nevins 2011, Arregi and Nevins 2012: 134 for similar reasoning regarding Fission in Basque).

Interim summary

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 [α author].

(41) Gumer (West Gurage) imperfective $\sqrt{\text{kft}}$ 'open' (Völlmin 2017: 122, Table 57)

	SG	PL
1	ə-kəft	ni-kəft-inə
2M	ti-kəft	ti-kəft-o
2F	ti-kəft-^{j}	ti-kəft-əma
3M	yi-kəft	yi-kəft-o
3F	ti-kəft	yi-kəft-əma

(42) Wolane (East Gurage) negative relative compound imperfect + object 'him', $\sqrt{\text{sbr}}$ 'break' (Meyer 2006: 127) (REL-NEG-AGR-$\sqrt{\text{sbr}}$-AGR-him-AUX-AGR)

	SG	PL
1	yɛ-ʔa-l-sɛbr-ɛy-ā-h^{w}	yɛ-ʔa-l-sɛbr-nɛ-y-ān
2M	yɛ-ʔa-t-sɛbr-ɛy-ā-hɛ	yɛ-ʔa-t-sɛbr-u-y-ā-h^{w}m
2F	yɛ-ʔa-t-sɛbr-i-y-ā-š	yɛ-ʔa-t-sɛbr-u-y-ā-h^{w}m
3M	yɛ-ʔa-y-sɛbr-ɛy-ān	yɛ-ʔa-y-sɛbr-u-y-ān
3F	yɛ-ʔa-t-sɛbr-ɛy-ā-t	yɛ-ʔa-y-sɛbr-u-y-ān

Also Argobba of Aliyu Amba (Leslau 1997), Chaha (Banksira 2000: 242–252), Muher (Meyer 2019), Silt'e (Gutt 1986, 1997), and Z(w)ay (Leslau 1999, Meyer 2005).

Because [α author] is marked in both the prefix and suffix positions, I propose that 1PL discontinuous agreement in Ethiopian Semitic is due to **Doubling**, not Fission:

(43) **First person plural Doubling in Gumer, Wolane, etc.**

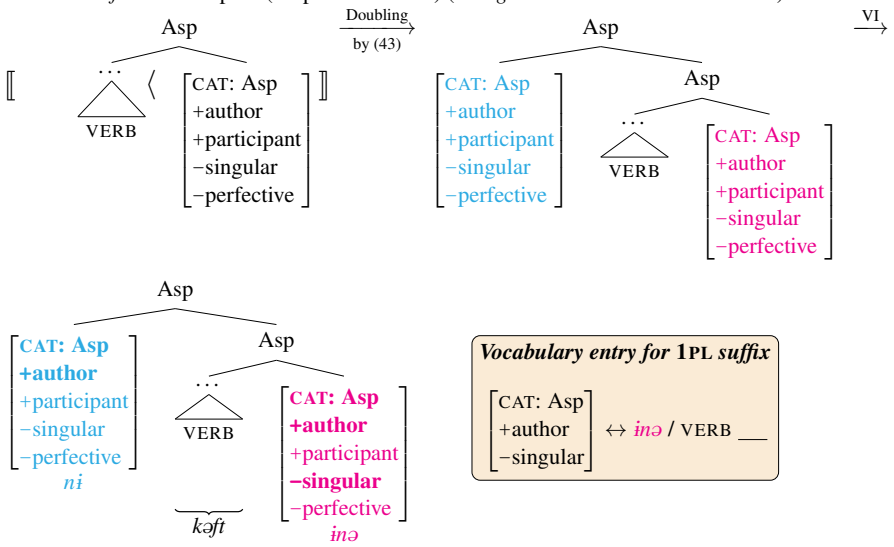
a. Structural description: $[_{\text{Asp}^{0\max}}\ \sqrt{}\ \text{v Voice Asp}_{[+\text{author}, -\text{singular}, -\text{perfective}]}$

b. Structural change:

i. Insert [to the immediate left of $\sqrt{}$, and] to the immediate right of $\text{Asp}_{[+\text{author}, -\text{singular}, -\text{perfective}]}$.

ii. Insert ⟨ to the immediate left of $\text{Asp}_{[+\text{author}, -\text{singular}, -\text{perfective}]}$.

(44) Gumer *ni-kəft-inə* 'we open' (1-open.IPFV-1.PL) (*background: Fission is autonomous*)



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

UPSHOT: 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

Summary and consequences

✓ 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. Gurage).

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A. Allomorphy in discontinuous agreement: Additional data

Ṣanʕānī Arabic (Semitic, Yemen) feminine plural suffix: *-ayn*∼*-ann*

The form of the F.PL suffix depends on its linear position: *-ann* before direct object clitics, *-ayn* elsewhere.

(45) a. **yi**- št **-ayn**
3- want **-F.PL**
'they (f.pl.) want'

b. **yi**- št -**ann** -iš
3- want **-F.PL** -2.F.SG.OBJ
'they (f.pl.) want you (f.sg.)' (Watson 2011: §2.8.3)

-ann is not forced by phonological/syllabic requirements of the language:

- *-aynVC* sequences are otherwise attested in the language.

(46) a. bayn-ih
in-3.M.SG
'in it'

b. dayn-ih
debt-3.M.SG.POSS
'his debt' (Watson 2002: 209)

(47) a. *bazz**ayn**āhā* ∼ *bazz**ayn**ahā*
bazz-ay-nā-hā
take-STEM.AUG-1.PL-3.F.SG.OBJ
'we take her'

b. *bazz**ann**ahā*
bazz-ann-ahā
take-3.F.PL-3.F.SG.OBJ
'they (f.pl.) take her' (Watson 2002: 209)

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 -umu: -ha:
wrote -2 -M.PL -3.F.SG.OBJ
'you (m.pl.) wrote it (f.sg.)'

(49) Biblical Hebrew 2.M.PL allomorphy

a. wə- haʕălī -t -ɛm
and.ASP- brought.up -2 -M.PL
'you will bring up' (Exod 13.19)

b. heʕĕlī -t -ū -nū
brought.up -2 M.PL -1.PL.OBJ
'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 *-ɛm* in the Hebrew pre-clitic allomorph in (49b)).

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

b. Biblical Hebrew
ti- šmər -ū
2- will.guard -M.PL
'you (M.PL) will guard' (Hornkohl 2019: 548)

Argobba of Shonke and T'ollaha (Semitic, Ethiopia) third plural suffix: *-u*∼*-*∅

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

(51) a. y- awid -u -ll -ɛy (>*yawdullɛy*)
3- tell.IPFV -3.PL -AUX -3.PL
'they tell' (Wetter 2010: 171)

b. y- awid -∅ -yyɛm -ll -ɛy (>*yawidɨyyɛmɨllɛy*)
3- tell.IPFV -3.PL -3.PL.OBJ -AUX -3.PL
'they tell them' (Wetter 2010: 394)

Compare the invariant second plural agreement suffix.

(52) a. t- awid -u -ll -uxum (>*tawdulluxum*)
2- tell.IPFV -2.PL -AUX -2.PL
'you (pl.) tell' (Wetter 2010: 171)

b. t- awid -u -yyɛm -ll -uxum (>*tawiduyyɛmlluxum*)
2- tell.IPFV -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)), *-u* appears.

(53) a. ∅- mɛt' -u -ll -o -ll -ɛy (>*mɛt'ullollɛy*)
3- come.IPFV -3.PL -BEN -3.M.SG -AUX -3PL
'they come to his advantage' (Wetter 2010: 190, (196))

b. ∅- mɛt' -u -bb -o -ll -ɛy (>*mɛt'ubbollɛy*)
3- come.IPFV -3.PL -MAL -3.M.SG -AUX -3PL
'they come to his disadvantage' (Wetter 2010: 190, (194))

(54) a- y- awid -u -m (>*ayawidum*)
NEG- 3- tell.IPFV -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 *ɨ* vowel.

⇒ Near minimal pairs of verbs without the complicating auxiliaries still exhibit the same contrast.

(55) a. awid -u -yyɛm (>*ʔawiduyyɛm*)
tell.IMV -2.PL -3.PL.OBJ
'tell (pl) them!' (imperative)

b. y- awid -∅ -yyɛm (>*yawidɨyyɛm*)
3- tell.JUSS -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 (*-yyɛm*).

(56) Cf. the 3.PL object clitic *-ɛbbɛm* after verbs bearing 3.M.SG subject agreement
y- awid -∅ **-ɛbbem** -ɛll -∅ (>*yawidɛbbemɛll*)
3- tell.IPFV -M.SG **-3.PL.OBJ** -AUX -3.M.SG
'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)

	SG	PL
1	y-sɛbr-ā-h^{w}	y-sɛbr-n-ān
2m	t-sɛbr-ā-he	t-sɛbr-u-ā-h^{w}m
2f	t-sɛbr-i-ā-š	t-sɛbr-u-ā-h^{w}m
3m	y-sɛbr-ān	y-sɛbr-u-ān
3f	t-sɛbr-ā-t	y-sɛbr-u-ān

(58) Wolane first person verbs in subordinate contexts

a. t- l- hēd
when- 1- go.IPFV
'when I go'

b. t- l- hēd -nɛ
when- 1- go.IPFV -1PL
'when we go' (Meyer 2006: 110–111)

(59) Wolane first person verbs in negative relative clauses

a. yɛ- ʔa- l- sɛbr -ey -ā -h^{w} gəz
REL- NEG- 1- break.IPFV -3.M.SG.OBJ -AUX -1.SG thing.M.SG
'the thing which I do not break'

b. yɛ- ʔa- l- sɛbr -nɛ -y -ān gəz
REL- NEG- 1- break.IPFV -1.PL -3.M.SG.OBJ -AUX thing.M.SG
'the thing which we do not break' (Meyer 2006: 127)

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

(60) Wolane third person masculine singular verbs in subordinate contexts[1]
t- i- hēd
when- 3- go.IPFV
'when he goes' (Meyer 2006: 110–111)

(61) Wolane third person masculine singular verbs in negative relative clauses
yɛ- ʔa- y- sɛbr -ɛy -ān gəz
REL- NEG- 3- break.IPFV -3.M.SG.OBJ -AUX thing.M.SG
'the thing which he doesn't not break' (Meyer 2006: 127)

Yimas [+participant] paucal suffix: ŋ*kt*∼ŋ*kan*

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- 1.PL.ERG- see -PERF -PC
'We few saw them'

b. ta- kay- cay -c -ŋkan -um
NEG- 1.PL.ERG- see -PERF -PC -3.PL.ABS
'We few didn't see them'

c. pia- kay- i -c -ŋkan -mpun
talk- 1.PL.ERG- tell -PERF -PC -3.PL.DAT
'We few told them' (Foley 1991: 216, 217, 221)

[1] Third person agreement is realized as -*i*- when syllabified as a syllable nucleus.

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).

Prefix	Stem	Theme sign	Central ending		**Peripheral ending**
			n-endings	w-endings	
n- '1' k- '2'		-əm '3INAN object' -a 'direct' (3AN object)	-ən 'SG' -ənennu '1PL' -əniya '2PL'	-∅ 'SG' -nnu '1PL' -wa '2PL'	**-əl** '3INAN.PL' **-ək** '3AN.PL'

Table 1: Passamaquoddy-Maliseet verbal template (data from Francis and Leavitt 2008: 665, 668)

(63) pun- 'place INAN', n-endings
(Francis and Leavitt 2008: 665)

a. npunənəməl
n- pun -əm -ən **-əl**
1- place -INAN -(1)SG **-3IN.PL**
'I place them (inanimate)'

b. kpunənəməl
k- pun -əm -ən **-əl**
2- place -INAN -(2)SG **-3IN.PL**
'you.SG place them'

c. npunəmənennul
n- pun -əm -ənennu **-əl**
1- place -INAN -1PL **-3IN.PL**
'we.EXCL place them'

d. kpunəməniyal
k- pun -əm -əniya **-əl**
2- place -INAN -2PL **-3IN.PL**
'you.PL place them'

(64) təkəm- 'hit ANIM', w-endings
(Francis and Leavitt 2008: 668)

a. ntəkəmak
n- təkəm -a -∅ **-ək**
1- hit -DIR -(1)SG **-3AN.PL**
'I hit them (animate)'

b. ktəkəmak
k- təkəm -a -∅ **-ək**
2- hit -DIR -(2)SG **-3AN.PL**
'you.SG hit them'

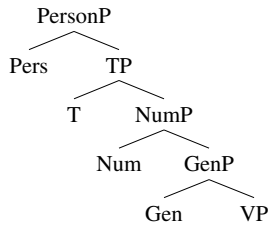
c. ntəkəmannuk
n- təkəm -a -nnu **-ək**
1- hit -DIR -1PL **-3AN.PL**
'we.EXCL hit them (animate)'

d. ktəkəmawak
k- təkəm -a -wa **-ək**
2- hit -DIR -2PL **-3AN.PL**
'you.PL hit them'

B. Against a syntacticization of discontinuous agreement

PersonP hypothesis: φ-features project independently (Shlonsky 1989, Martinović 2019; see also Banksira 1999, 2000, Fassi Fehri 2000, Tourabi 2002, Lumsden and Halefom 2003, Lowenstamm 2011, and Bruening 2017: 51–55).

(65)

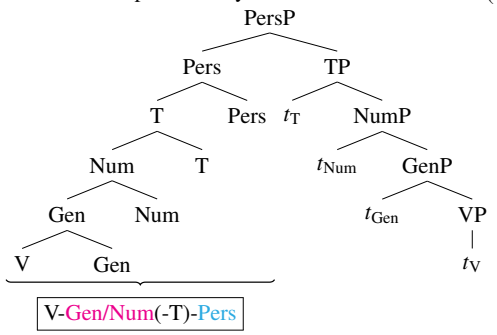


- **Suffix conjugation:** V moves successive-cyclically to Pers.
- **Prefix conjugation:** V moves successive-cyclically to T, Pers is a prefix (e.g. via Lowering; Embick and Noyer 2001).

PersonP makes incorrect predictions.

- PersonP incorrectly predicts an anti-Mirror Principle affix order in the suffix conjugation.

(66) Suffixal order predicted by PersonP



(67) Ṣanʕānī Arabic perfect $\sqrt{\text{gmbr}}$ 'sit' (Watson 1993: 56)

	Plural
1	gambar-**nā**
2M	gambar-**t-ū**
2F	gambar-**t-ayn**
3M	gambar-∅-**ū**
3F	gambar-∅-**ayn**
	V-Pers-Gen/Num

- No clear one-to-one mapping between φ-features and agreement affixes in impure discontinuities.

(68) **ti**- gambir -**ī**
2- sit -**2**.F.SG
'you (f.sg) sit' (Ṣanʕānī Arabic)

- No clear reason why agreement is *sometimes* discontinuous, and *sometimes not* (e.g. 1st vs. 2nd/3rd).
- Assuming that head movement is feature driven, the prefix conjugation would require a *different flavor of Pers*^{0} attracting the verb in the suffix conjugation, but not in the prefix conjugation. I do not know of independent evidence in favor of this analysis.

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

Arabic hollow roots (= roots with medial glides):

(69) Syrian Arabic $\sqrt{\text{nwm}}$ 'sleep' (Cowell 1964)
a. nəm -**t** -**i**
slept -**2** -**2**.F.SG
b. **t**- nām -**i**
2- sleep -**2**.F.SG

Reduction in the stem (*nām* → *nəm*) is prosodic: a short vowel appears in the stem with C-initial agreement suffixes. Tthe 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

Phonologically identical affixes in the prefix and suffix conjugations can appear on different sides of the verb in many languages:

(70) Tunisian Arabic $\sqrt{\text{ksr}}$, *Form II* (*XaYYaZ*) 'break'
a. kassar -**t**
broke -**2**
b. **t**- kassər
2- break

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 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)).