



10-1-2020

Mobile Affixes Across Western Armenian: Conflicts Across Modules

Nikita Bezrukov

Hossep Dolatian

Follow this and additional works at: <https://repository.upenn.edu/pwpl>

Recommended Citation

Bezrukov, Nikita and Dolatian, Hossep (2020) "Mobile Affixes Across Western Armenian: Conflicts Across Modules," *University of Pennsylvania Working Papers in Linguistics*: Vol. 26 : Iss. 1 , Article 6.
Available at: <https://repository.upenn.edu/pwpl/vol26/iss1/6>

This paper is posted at ScholarlyCommons. <https://repository.upenn.edu/pwpl/vol26/iss1/6>
For more information, please contact repository@pobox.upenn.edu.

Mobile Affixes Across Western Armenian: Conflicts Across Modules

Abstract

In this paper, we discuss the cross-linguistically rare case of mobile affixation in three Western Armenian varieties, in which the Indicative marker alternates between a prefixal and a suffixal realization depending on the context. In Hamshen Armenian, conditioning is fully phonological: the Indicative is a prefix if the verb is vowel-initial and a suffix elsewhere. However, in Gyumri and Akhalkalaki Armenian, the placement of the Indicative marker is subject to a curious interleaving between phonological and syntactic conditions. First, if a consonant-initial verb is alone in some relevant syntactic domain, the affix takes a suffixal position, but if there is extra syntactic elements present, it surfaces as a prefix (syntactic condition). This domain is similar to syntactic phases but not always isomorphic to them. In Akhalkalaki, the Indicative is even capable of leaving the verb base and cliticizing onto the constituent bearing the sentential stress. We discuss the data and provide a preliminary analysis.

Mobile Affixes Across Western Armenian: Conflicts Across Modules

Nikita Bezrukov and Hossep Dolatian*

1 Introduction

Studying affix order concerns understanding the principles behind affix placement. Cross-linguistically, affixes are usually *STABLE* and always on the same edge of the word: a prefix (suffix) is always a prefix (suffix). The rare exceptions are *MOBILE* affixes which switch between a prefix and suffix based on their base’s phonological or lexical properties, e.g. *Huave* (Noyer 1994, Kim 2010, 2015) and *Afar* (Fulmer 1991, 1997), but these are controversial (Paster 2006, 2009). Similar cases are morphosyntactically conditioned endocclisis, e.g. *Udi* (Harris 2002).

In this paper, we document our fieldwork results on Armenian affix order. Armenian is an independent branch of the Indo-European family. It is primarily suffixing, has *SOV* word order, preverbal focus position, and the distribution of sentential stress is similar to Persian and Turkish. We focus on four Armenian lects: Standard Western, Hamshen, Gyumri, and Akhalkalaki (1). The four lects are part of the Western branch of Armenian which used to be widely spoken in the Ottoman Empire (OE). Gyumri and Akhalkalaki are subdialects of the Karin/Erzurum subbranch.

(1) *Geographic distribution of the Armenian lects under study*

	Standard	Hamshen	Gyumri	Akhalkalaki
Pre-20th century	Istanbul (OE)	Trabzon (OE)	Erzurum (OE)	Erzurum (OE)
Present	Dispersed	Georgia, Turkey	Armenia	Georgia

We focus on the imperfect indicative (INDC) affix /**gV/* which is shared across the four lects but has a divergent distribution across them. Diachronically, the INDC affix was a prefix in Middle Armenian, and in most modern Western Armenian lects like Standard Western. But in some dialects, the affix is mobile (2) and its placement is determined by phonological, syntactic, and prosodic factors. In Hamshen, the only factor is phonological. The INDC is a prefix in V-initial words and a suffix elsewhere. In Gyumri and Akhalkalkali, there are additional syntactic factors involved. In general, C-initial verbs take the suffix but can exceptionally take the prefix under specific syntactic conditions. In Akhalkalaki, affix order is additionally influenced from sentential prosody. The morpheme can leave the verb and cliticize onto the stressed constituent.

(2) *Distribution and shape of the INDC across the four lects*

	Subjunctive	Indicative				
	Standard	Standard	Hamshen	Gyumri	Akhalkalaki	
V-initial	arnes	g -arnes	g -arnes	k -arnes	k -arnes	‘you take’
C-initial	xosis	gə -xosis	xosis- gu	xoses- gə	xosis- gə	‘you speak’

We expand on the many points of divergence among the lects and we catalog the conditions for affix mobility. Our work is preliminary and part of continuous effort. We keep discussion to a relatively high level and do not formalize our results with complicated rule or constraint systems. We focus on the position of the affix in the different lects, not the shape of the affix.

2 Standard Western: Fixed Prefix and Diachronic Origins

In Standard Western, subjunctive verbs are formed by the verb stem and Tense/Agreement suffixes: *arnes*, *xosis* (2).¹ There is no overt subjunctive marker. Imperfective indicatives are formed by

*We thank our language consultants – Gohar Gülmisaryan, Harut Iritsyan, Eteri Potapova, and Karen Tonoyan – and audiences at OV-IS, TU+4, PLC, and AIMM.

¹Verbs can be decomposed into a base, theme vowel and T/Agr morphology: *xos-i-s* ‘speak-TH-2SG’ *you speak*. For clarity, we only show the prefix boundary; the internal division of verbs is orthogonal.

adding the prefix [g-] before V-initial verbs and [gə-] before C-initial verbs: *g-arnes*, *gə-xosis*.²

For V- vs. C-initial verbs, the underlying form of the affix is /g-/. A schwa is added before C-initial verb in order to repair the consonant cluster. Complex onsets are generally banned in Armenian and repaired by schwa epenthesis (Vaux 1998). A sample derivation is in (3).

(3) *Sample derivation for Standard Western*

Input		INDC-arnes	INDC-xosis
Exponence	INDC={g-}	g -arnes	g -xosis
Phonology	Schwa epenthesis		gə -xosis
Output		g -arnes	gə -xosis

The INDC is a prefix because of diachrony. It descends from the construction *kay ew* VERB ‘exists and VERB’ from Classical Armenian (Vaux 1995). This construction grammaticalized into a prefix based on the hypothesized trajectory in (4). Various voicing shifts occurred on the way (Baronian 2017). This trajectory explains the different voicing and vowel qualities in (2). Synchronically, the fact that the INDC is a prefix is an arbitrary fact about this affix. Armenian is primarily suffixing; the only inflectional prefixes are the INDC and negation marker /tʰ-/.

(4) *Diachronic trajectory of the INDC*

kay ew V > *kay u* V > *ku* V > *gu* V > *gə*³ V

3 Hamshen: Phonologically-conditioned Affix Mobility

In Hamshen, the subjunctive is formed the same way as in Standard Western. But the form and distribution of the INDC is different. The INDC is a prefix [g-] for V-initial verbs and a suffix [-gu] for C-initial verbs: *g-arnes*, *xosis-gu* (2).^{4,5}

A simple analysis is that the allomorphs [g-, -gu] are derived from two suppletive underlying forms /g-, -gu/ that are selected by the insertion rules in (5a).⁶ To facilitate cross-dialectal comparison, we separate the linearization of the affix from its surface shape (5b). The affix is linearized as a prefix by phonological factors (= a prefix if V-initial); it is linearized as a suffix in the elsewhere case by the morphology (= Armenian is primarily suffixing). If prefixed, the allomorph /g-/ is used; if suffixed, the allomorph /-gu/ is used. A sample derivation is in (5c).

(5) a. *Insertion rules for INDC in Hamshen*

INDC \iff g- / _VX
 -gu / elsewhere

b. *Decomposed insertion rules for INDC in Hamshen*

i. *Linearization*

INDC \iff INDC- / _VX
 -INDC / elsewhere

ii. *Spell-out*

INDC- \iff g-
 -INDC \iff -gu

²Armenian has only three monosyllabic verbs. Here, the INDC takes a separate, suppletive, phonologically non-optimizing allomorph *gu-*: *gu-las* ‘you cry’, *gu-das* ‘you give’, *gu-kas* ‘you come’. We set these aside.

³Various sound changes have affected the affix’s surface allomorphs across the lects at this stage.

⁴The distribution of the affix is entirely phonological. There is no semantic factor behind the two surface positions. The valency of the verb does not play any role. The quality of the initial vowel or consonant likewise doesn’t matter. The only exception are the three monosyllabic verbs in Armenian (Vaux 2007).

⁵In most Hamshen varieties, the INDC is the outermost morpheme on the verb: *g-estom* ‘I go’, *xosim-gu* ‘I speak’. But in some varieties like Köprücü Hamshen, the suffix can optionally surface inside the verb stem between the Tense and Agreement markers on C-initial verbs: *g-ertom* ‘I go’, *xarbi-gu-m* ‘I speak’ (Vaux 2007).

⁶With two URs, equivalent treatments are using of sub-categorization frames (Inkelas 1989, Paster 2006) or constraint interaction (Kim 2010). Alternatively, the INDC can be one underlying form /gu/. If placed before a V-initial verb, the vowel /u/ would be deleted by a morpheme-specific rule of vowel truncation. This rule must be morpheme specific because the most common vowel hiatus repair rule for /u/ is glide-hardening into [v].

c. *Sample derivation for Hamshen*

Input		INDC arnes	INDC xosis
Phonology	Prefix for V-initial	INDC-arnes	
Morphology	Suffix elsewhere		xosis-INDC
Exponence	INDC={g-, -gu}	g -arnes	xosis- gu
Output		g -arnes	xosis- gu

4 Gyumri: Phonological and Morpho-syntactic Mobility

Like in Hamshen, the position of the INDC in Gyumri is based on phonology *by default*. V-initial verbs take the prefix [k-] while C-initial verbs take the suffix [-gə]: *k-arnes*, *xoses-gə* (2). But unlike Hamshen, Gyumri displays additional *morphosyntactic* factors on the placement of the INDC. These factors cause C-initial verbs to exceptionally take the prefix [k-] or even [g-]. Throughout this section, this change is called the *prefix switch*. We catalog and analyze these conditions.

4.1 Catalog of Prefix-switch Conditions in Gyumri

4.1.1 Morphological Triggers: Aspect and Mood

By default, the INDC is a prefix *k-* for V-initial and *-gə* for C-initial verbs in Gyumri. But in two morphological contexts, the prefix-switch applies: habitual and conditional forms. Progressive verbs are overtly the same as simple present verbs: *k-est^ha*, *vazze-gə* (6a). However, if the verb is habitual, both V-initial and C-initial verbs take the prefix [k-]. Schwa epenthesis applies to repair the consonant cluster: *k-est^ha*, *kə-vazze* (6b). Sentential stress is underlined; the affix is in bold.⁷

- (6) a. i. $\text{jun-}\text{ə}$ **k-est^ha**
 dog-DEF INDC-go
 ‘The dog is going’
 ii. $\text{jun-}\text{ə}$ vazze-gə
 dog-DEF run-INDC
 ‘The dog is running’
- b. i. $\text{jun-}\text{ə}$ **k-est^ha**
 dog-DEF INDC-go
 ‘The dog (habitually) goes’
 ii. $\text{jun-}\text{ə}$ **kə-vazze**
 dog-DEF INDC-run
 ‘The dog (habitually) runs’

Interestingly, the voicing quality of the prefix can differ among verbs. For some speakers, the voicing quality of the prefix in C-initial verbs matches that of the ‘normal’ prefix: habitual *k-est^ha*, *kə-vazze*. For other speakers, the voice quality instead matches that of the *suffix*: habitual *k-est^ha*, *gə-vazze* vs. progressive *vazze-gə*. As of now, our data is too limited to study this alternation in depth; it can indicate whether affix placement is cyclic and has single vs. multiple underlying forms.^{8,9}

A second instance of prefix-switch comes from irrealis forms. Compare a present indicative form like (7a) which takes the suffix and a conditional in (7b) which always takes the prefix.

- (7) a. $\text{jun-}\text{ə}$ vazze-gə
 dog-DEF run-INDC
 ‘The dog is running’
- b. *jete k-uzes*, $\text{jun-}\text{ə}$ **kə-vazze**
 if want, dog-DEF INDC-run-
 ‘If you want, the dog will run’

For the aspect and mood pattern, we could analyze the prefix-switch as a morphological rule. Habitual aspect and conditional are overtly marked in Gyumri by the prefix *k-* which is superficially identical to the INDC (due to a shared historical origin and/or influence from Standard Eastern Armenian). The purely morphological analysis, however, cannot be extended elsewhere. The shift can be triggered by factors *besides* morphosyntactic features. Before we discuss those, the next section briefly explains general Armenian syntax.

⁷For some Gyumri speakers, aspect does not trigger the prefix-switch.

⁸A complicating factor is that Gyumri has a four-way laryngeal contrast between voiced unaspirated, voiced aspirated, voiceless unaspirated, and voiceless aspiration, with neutralization in different word positions.

⁹There is evidence that aspect cannot trigger the switch if the prefix would be sentence-initial: compare [$\text{jun-}\text{ə}$ **kə-vazze**] ‘dog (habitually) runs’ (6b-ii) with [vazze-gə] ‘(it habitually) runs’ with subject drop.

4.1.2 Excursus into Basics of Armenian Syntax

Western Armenian word order is primarily SOV. The sentences below are from Standard Western. The verb is in the perfect past and marked by the aorist stem. The imperfective INDC affix isn't used. Nominative and accusative case are covert zero suffixes; specificity or definiteness (glossed as D or DEF) is marked by the suffix *-ə* after consonants and *-n* after vowels.

- (8) a. ara-n kirk dzaxets b. ara-n kirk-ə dzaxets c. ara-n kirk-ə dzaxets
 Ara-D book sold Ara-D book-D sold Ara-D book-D sold
 'Ara sold books' 'Ara sold the book'
 'The book, Ara sold'

If the object is a bare object (without definiteness or indefiniteness marking), then it is interpreted as a generic noun and takes nuclear stress (8a) (Sigler 1997). If the object is definite or specific, it still takes nuclear stress in Western Armenian (8b). Definite objects *can* repel stress if they are presupposed or mark given or topicalized information (8c).¹⁰ In the following sections, a constituent is said to be 'stressed' if it receives nuclear or sentential stress under broad focus conditions. If a constituent received sentential stress under narrow focus, then it is 'focused'.

4.1.3 Syntactic Triggers: Locative, Direct Objects, and Manner Adverbs

We catalog four cases where extra-morphological factors trigger the prefix-switch in Gyumri: locatives, direct objects, and manner adverbs. First, if a motion verb takes a locative as an argument, then the locative takes sentential stress. C-initial verbs undergo the prefix switch.¹¹

- (9) a. i. jun-ə vazze-gə b. i. jun-ə tun kə-vazze
 dog-DEF run-INDC dog-DEF home INDC-run
 'The dog is running' 'The dog is running home'

Prefix switch is seen in transitive clauses based on the object's status as overt vs. covert, bare vs. definite, given vs. new. If no object is present, C-initial verbs take the suffix (10a). If a bare object is used, then the object is stressed and C-initial verbs show the prefix switch (10b). If the object is definite, it can either be stressed if new information (10c); otherwise it is unstressed because it is given or a topic (10d). If the definite object is stressed, then the prefix switch applies.

- (10) a. ara-n tsaxe-gə b. ara-n girk^h kə-tsaxe
 Ara-DEF sells-INDC Ara-DEF book INDC-sells
 'Ara is selling' 'Ara is selling books'
- ara-n girk^h-ə kə-tsaxe d. ara-n girk^h-ə tsaxe-gə
 Ara-DEF book-DEF sells-INDC Ara-DEF book-DEF sells-INDC
 'Ara is selling the book' 'The book, Ara is selling'

The prefix-switch is likewise found because of certain adverbs which take nuclear stress (11b). Data is preliminary, but it is possible that only morphologically simplex manner adverbs from a closed class can trigger the prefix-switch: good, bad, fast, slow. It excludes manner adverbs which are morphologically complex or which mark the state of the speaker, e.g. hungry, secretly, thirsty.

- (11) a. ara-n girk^h-ə tsaxe-gə b. ara-n girk^h-ə lav kə-tsaxe
 Ara-DEF book-DEF sells-INDC Ara-D book-D well INDC-sells
 'The book, Ara is selling' 'The book, Ara is selling well'

¹⁰In Eastern Armenian, definite objects tend to repel stress onto the verb (Megerdooimian 2009).

¹¹In our preliminary results, it is unclear to us if the locative must be an argument, a direction, or must be a simple noun instead of an adpositional phrase.

4.1.4 Information Structure Triggers: Focus

The prefix-switch is also affected by focus. In the simple intransitive sentence in (12a), the sentence is under broad focus and there is no prefix switch. But if narrow focus is added onto the subject, then we have the prefix switch. The subject can be focused either because it's a wh-word (12b) or because it answers a wh-question (12c). Focused constituents and in uppercase.

- (12) a. ʃun-ə vazze-gə b. ov kə-vazze c. ʃun-ə kə-vazze
 dog-DEF run-INDC who INDC-run dog-DEF INDC-run
 'The dog is running' 'WHO is running?' 'The DOG is running'

Focus-operator clitics like *el* 'also' induce narrow focus on their host and trigger the switch.

- (13) a. ʃun-ə vazze-gə b. kadu-n=el kə-vazze
 dog-DEF run-INDC cat-DEF=also INDC-run
 'The dog is running' 'The CAT is also running'

In the above examples, the focused constituent and the verb were adjacent. However, the prefix switch can apply even if the focused constituent is not adjacent to the verb.

- (14) a. ara-n $\text{girk}^h\text{-ə}$ tsaxe-gə b. mariam-n=el $\text{girk}^h\text{-ə}$ kə-tsaxe
 Ara-DEF book-DEF sells-IN Maria-DEF=also book-DEF IN-sells
 'The book, Ara is selling' 'The book, MARIA is also selling'

4.2 Classification of the Prefix-switch Conditions

To summarize, the Gyumri INDC is by default a prefix [k-] for V-initial verbs and a suffix [-gə] for C-initial verbs. In the simplest cases, the choice is determined by phonological factors: giving an onset to a verb, and by morphological factors: suffixing elsewhere. But in some cases, C-initial verbs switch to a prefix [kə-] in various constructions summarized in (15).

- (15) *Conditions and distribution of prefix-switch in Gyumri*

	Aspect	Mood	Locative	Object	Manner Adverb	Focus
Prefix	HAB	REAL	✓	✓	✓	✓
Suffix	PROG	IRR	✗	✗ or given	✗	✗

The question posed now is: *why these constructions?* We argue that prefix-switch is triggered when the verbal predicate (VP) changes or enlarges based on multiple factors:

- (16) Prefix switch due to
- a. **Morphological Markedness:**
 - i. *Context:* Aspect, Mood
 - ii. *Generalization:* prefix switch if the morphosyntactic features are 'marked'
 - b. **Size of syntactic domain:**
 - i. *Context:* Locative, Object, Adverb
 - ii. *Generalization:* prefix switch if the verbal predicate (VP) is larger than the verb
 - c. **Information structure:**
 - i. *Context:* Focus
 - ii. *Generalization:* prefix switch if focus is added to the sentence

Habitual and irrealis verbs trigger prefix-switch for purely morphological reasons (16a). The affix is recruited via affix mobility to show a contrast and to expressed a marked feature. This means that either i) progressive and realis verbs are unmarked for aspect and mood, or ii) the feature-setting [+habitual] or [+realis] are functionally marked structures. Unlike the other conditions in (15), these morphological conditions do not cause any difference in sentential stress.

The second batch of contexts require access to the larger syntactic structure (16b). All these contexts involve the shift in sentential stress to a preverbal constituent. Some involve the addition of a new item in the VP or the sentence, as long as the new item is not given information.

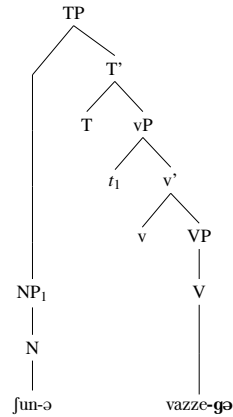
The third context is changing the information structure of the sentence by adding narrow focus onto some constituent (16c). This factor does not require that a new item is added to the sentence, although it can be caused by the addition of focus operators. Focus likewise doesn't require overt movement in Armenian and it can be marked by only sentential stress.

4.3 Analysis and Problems with a Phase-based Approach

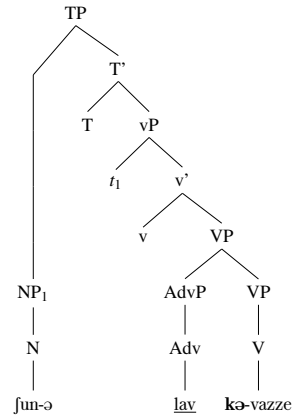
The prefix-switch is clearly sensitive to some relevant **syntactic domain** in (16b). If the verb appears *alone* in this domain, then the INDC is a suffix; otherwise, it is a prefix. But what is this domain? One possible formalization are phases (Kahnemuyipour 2009, Kahnemuyipour and Megerdooomian 2017), which are generally treated as cycles for syntactic computation and prosody. Two generally accepted phases are vP and CP to respectively handle the thematic domain and clause-level syntax. In this system, the lower vP phase would be the domain of sensitivity for the prefix switch.

To illustrate, in a simple intransitive sentence like (17a-i), the vP phase contains only the verb (17b-i). The INDC is a suffix. But if a manner adverb is added as an adjunct to the VP (17a-ii), then the vP contains more than the verb (17b-ii). This triggers the prefix switch.

- (17) a. i. $\text{jun-}\bar{\text{a}}$ $\text{vazze-g}\bar{\text{a}}$
 dog-DEF run-INDC
 'The dog is running.'
- ii. $\text{jun-}\bar{\text{a}}$ lav $\text{k}\bar{\text{a}}\text{-vazze}$
 dog-DEF well INDC-run
 'The dog is running well.'



- b. i. dog-DEF run-INDC



- b. ii. dog-DEF well INDC-run

The generalization is then simple: *Use a prefix if the phase is larger than the verb.* This can be alternatively stated as *Use a prefix if the pre-verbal position in the phase is occupied, or if the verb isn't at the phase boundary.* We show a sample derivation in (18).¹²

- (18) *Deriving syntactically-conditioned affix mobility in Gyumri*

Input		S [_{vP} INDC <u>vazze</u>]	S [_{vP} <u>Adv</u> INDC vazze]
Phonology	Prefix for V-initial		
Syntax	Prefix in larger phase		S [_{vP} <u>Adv</u> INDC-vazze]
Morphology	Suffix elsewhere	S [_{vP} vazze-INDC]	
Exponence	INDC={k-, -gə}	S [<u>vazze-gə</u>]	S [<u>Adv</u> k-vazze]
Phonology	Schwa epenthesis		S [<u>Adv</u> kə-vazze]
Output		S [<u>vazze-gə</u>]	S [<u>Adv</u> kə-vazze]

¹²The analysis *could* be extended to habituals and irrealis verbs if we assume that i) AspP and MoodP are in the lower phase, and ii) they trigger the prefix-switch when morphologically marked.

This analysis can be extended to focus-driven prefix switch (16c), if we assume that a low FocP is added either (a) within the vP phase or (b) on top of the vP with a subsequent redefining of phase boundaries (Kahnemuyipour and Megerdooian 2017). But, this approach is problematic because it can't model focus on high adverbs and subjects (12b)-(12c).¹³

In focus-neutral contexts, the main problem for this account is the status of objects. The bulk of phase-based treatments of nuclear stress treat definite objects as phase-external or outside the vP-phase (Kahnemuyipour 2009). To illustrate, Persian bans stress on definite direct objects (19a). The same is reported for Standard Eastern Armenian (19b) (Megerdooian 2009). But the unstressability of definite objects is *not* universal. Turkish has nuclear stress on pre-verbal definite objects (19c) (Üntak-Tarhan 2006) as does Standard Western Armenian (19d).

(19) *Nuclear stress on definite objects in Persian, Turkish, and Armenian*

	S	Def O	V		S	Def O	V
a. Persian	Ali	ketâb-ra	<u>xund</u>	c. Turkish	Ali	<u>kitab-ı</u>	okudu
b. E. Armenian	Ali-n	girk ^h -ə	<u>kardats^h</u>	d. W. Armenian	Ali-n	<u>kirk-ə</u>	gartats ^h

One could argue that the difference between the languages is syntactic, i.e. that the definite object is at spec-vP for Persian and Eastern Armenian, while it is at a lower position for Turkish (Üntak-Tarhan 2006) and Standard Western. However the evidence for this different object position is dubious in Turkish (Nakipoğlu 2009, 2019) and in Standard Western Armenian (Sigler 1997).

The second problem is that there is no *positive* evidence for syntactic cyclicity. The prefix switch is triggered after all syntactic movements and operations have applied. The lack of cyclicity makes it possible to treat the phase as some syntactic domain that is later referenced by the morpho-phonology *without* being interleaved in it (Kratzer and Selkirk 2007, Cheng and Downing 2016). This is in contrast to word-level cyclicity which some speakers show. As explained in Section 4.1.1, some speakers have the switched prefix match the voice quality of the default suffix instead of the default prefix: progressive *k-est^ha*, *vazze-gə* vs. habitual *k-est^h*, *kə-vazze~gə-vazze*. This suggests that the same morph */-gə/* was first used as a suffix and then shifted to the left.

In our analysis, we acknowledge that (a) the position of INDC is determined within some relevant syntactic environment (DOMAIN), and (b) that this environment is determined dynamically. We remain agnostic about the name of the domain, e.g. whether it corresponds to the lower phase boundary or not, as further research is needed. This covers the prefix-switch conditions which involve syntactic size (20). It can also account for prefix-switching under focus if we assume that the focus feature ([+F]) on a phrase extends the domain.

(20) *Formalizing 'size of syntactic domain' as a dynamic domain (=Dom) boundary*

	Locative	Bare Object	Manner Adverb	Focus
Domain	S [_{Dom} Loc V]	S [_{Dom} O V]	S [_{Dom} Adv V]	[_{Dom} S _[+F] [O V]]

5 Akhalkalaki: Prosodic Clisis

The distribution of the INDC is complicated in Gyumri. Although the INDC is by default a suffix for C-initial verbs, various syntactic factors unexpectedly cause the prefix-switch. Almost the same distribution is found in Akhalkalaki: *k-arnes*, *xoses-gə* (2). As in Gyumri, some speakers have C-initial verbs take the voiced *gə-xoses* or voiceless *kə-xoses* when undergoing the prefix-switch.¹⁴

Unlike Gyumri, Akhalkalaki speakers do not have aspect as a conditioning factor. Both progressive (21a) and habitual (21b) C-initial verbs are suffixed, unlike in Gyumri.

¹³Furthermore, deriving focus via a short movement to a low FocP is problematic in neighboring languages like Georgian (Borise and Polinsky 2018).

¹⁴There is evidence that there's a separate and late phonological rule of voicing assimilation for switched prefixes: *girk^h kə tsaxe* 'book INDC sells' but *girk^h-ə gə tsaxe* 'book-DEF INDC sells'. It is unclear if this voicing assimilation rule is obligatory or variable, and if it also applies in Gyumri.

- (21) a. $\text{fun-}\hat{\text{ə}}$ vazze-gə
dog-DEF run-INDC
'The dog is running'
- b. $\text{fun-}\hat{\text{ə}}$ vazze-gə
dog-DEF run-INDC
'The dog (habitually) runs'

A major difference is that the INDC in Akhalkalaki is additionally sensitive to *prosodic* factors. In Akhalkalaki, the INDC can *cliticize* onto the stressed or focused constituent. In an intransitive sentence, a focused subject triggers the prefix-switch (22a-ii). In a transitive sentence, the use of a bare object also triggers the prefix-switch (22b-ii).

- (22) a. i. $\text{fun-}\hat{\text{ə}}$ vazze-gə
dog-DEF run-INDC
'The dog is running'
- ii. kadu-n=a-gə vazze
cat-DEF=also=INDC run
'The CAT is also running'
- b. i. ara-n tsaxe-gə
Ara-DEF sell-INDC
'Ara is selling'
- ii. ara-n girk^h=kə tsaxe
Ara-DEF book=INDC sell
'Ara is selling books'

In the above contexts (22a-ii, 22b-ii), the affix and the stressed/focused constituent are adjacent. The INDC is an *enclitic* onto the preverbal item, not a *prefix* onto the verb: **girk^h gə-taxe*, *girk^h=kə tsaxe*; evidence is that a pause can be placed between the morpheme and the verb in slow speech.¹⁵ When the focused item is *not* adjacent to the verb, then the INDC will move and clearly cliticize onto the the focused item (23b). This violates the lexical integrity of the verb. A pause can follow the INDC morph. The morph is now a clitic; it follows any other clitics on the stressed/focused item, e.g. the clitic *a(l)* 'also'.

- (23) a. ara-n girk^h=kə tsaxe
Ara-DEF book=INDC sells
'Ara is selling books'
- b. mariam-n=a-gə girk^h tsaxe
Maria-DEF=also=INDC book sell
'MARIA is also selling books'

To further understand this extreme mobility, consider the difference between Gyumri and Akhalkalaki below. For a simple transitive sentence with a topicalized definite object, stress is on the verb. V-initial verbs take a prefix while C-initial verbs take a suffix. There is no prefix-switch. If a bare object is used instead, then the object takes stress and is adjacent to the verb. For a C-initial verb, Gyumri shows the prefix-switch while Akhalkalaki has enclisis. If we further add a focused wh-word *urdeḅ* 'where', the new focused item is not adjacent to the verb. The prefix stays fixed on the verb for Gyumri but it jumps onto the focused item in Akhalkalaki.

(24) *Distribution of INDC across Gyumri and Akhalkalaki with and without clisis*

	a.		b.		c.		
	S	Top O	V	S	where	O	V
Gyumri	$\text{anuf-}\hat{\text{ə}}$	$\text{hats}^{\text{h}}\text{-}\hat{\text{ə}}$	<u>tsaxe-gə</u>	$\text{anuf-}\hat{\text{ə}}$	<u>urdeḅ</u>	$\text{hats}^{\text{h}}\hat{\text{ə}}$	<u>kə-taxe</u>
Akhalkalaki	$\text{anuf-}\hat{\text{ə}}$	$\text{hats}^{\text{h}}\text{-}\hat{\text{ə}}$	<u>tsaxe=gə</u>	$\text{anuf-}\hat{\text{ə}}$	<u>urdeḅ=gə</u>	$\text{hats}^{\text{h}}\hat{\text{ə}}$	<u>tsaxe</u>
	'The bread, Anoush is selling'			'Anoush is selling bread'		'Where is Anoush selling bread'	

The analysis is straightforward. Akhalkalaki has almost the same grammar as Gyumri based on a mix of morphological, phonological, syntactic, and semantic factors. The difference is that Akhalkalaki has an additional prosodic rule that the INDC must cliticize onto the stressed item. The INDC becomes an enclitic instead of a proclitic because Armenian is primarily suffixing. A sample derivation is in (25).¹⁶

¹⁵These judgments are however impressionistic and need further acoustic verification. In casual speech, pauses can't be detected easily.

¹⁶The syntactic condition is almost always completely neutralized because of the prosodic condition. In a focus-neutral sentence, the syntactic changes which trigger the prefix-switch in Gyumri involve adding a preverbal item. This preverbal item always takes stress away from the verb. In Akhalkalaki, this causes the affix to appear as an enclitic instead of a prefix for the speaker described in this paper. It is unclear if other Akhalkalaki speakers are more lax and accept a prefix instead of an enclitic in these same syntactic constructions.

(25) *Derivation of INDC in Akhalkalaki*

		a. (22a-i)	b. (22a-ii)	c. (23a)	d. (23b)
Input		S [_{Dom} INDC <u>vazze</u>]	[_{Dom} <u>S</u> _[+F] INDC vazze]	S [_{Dom} <u>O</u> INDC tsaxe]	[_{Dom} <u>S</u> _[+F] O INDC tsaxe]
Phonology	Prefix for V-initial				
Syntax	Prefix in larger phase		[_{Dom} <u>S</u> _[+F] INDC-vazze]	S [_{Dom} <u>O</u> INDC- <u>tsaxe</u>]	[_{Dom} <u>S</u> _[+F] O INDC- <u>tsaxe</u>]
Prosody	Move to stressed		[_{Dom} <u>S</u> _[+F] =INDC vazze]	S [_{Dom} <u>O</u> =INDC <u>tsaxe</u>]	[_{Dom} <u>S</u> _[+F] =INDC O <u>tsaxe</u>]
Morphology	Suffix elsewhere	S [_{Dom} <u>vazze</u> -INDC]			[_{Dom} <u>S</u> _[+F] -INDC O <u>tsaxe</u>]
Exponence	INDC={g,-gə}	S [<u>vazze</u> =gə]	[<u>S</u> =gə vazze]	S [<u>O</u> =gə <u>tsaxe</u>]	[<u>S</u> =gə O <u>tsaxe</u>]
Phonology	Schwa epenthesis				
Output		S [<u>vazze</u> =gə]	[<u>S</u> =gə vazze]	S [<u>O</u> =gə <u>tsaxe</u>]	[<u>S</u> =gə O <u>tsaxe</u>]

6 Discussion & Conclusion

All in all, the position of the INDC is multimodular and based on many factors across the lects (26).

(26) *Cross-modular conditions on affix mobility across the Armenian lects*

Dialect:	Standard	Hamshen	Gyumri	Akhalkalaki
Position:	Fixed	Mobile		
Determined by:	Morphology			
	Phonology			
	Syntax			
	Prosody			

In Standard Western, the INDC is a stable prefix because of diachronic reasons. Its prefixhood is synchronically modeled as an arbitrary morphological property of the affix. In Hamshen and beyond, the affix is mobile and its mobility is phonologically conditioned. The generalization is simple and motivated by syllable structure: *Use a prefix to give a V-initial verb an onset, otherwise use a suffix because Armenian is primarily suffixing*. In the case of Hamshen, affix mobility is conditioned only by phonology and is robust (cf. Paster 2009, Kim 2015).

This phonological mobility opens a *Phonological Pandora’s Box* and leads to syntactically-conditioned mobility in Gyumri and Akhalkalaki. The position of the INDC is sensitive to some notion of syntactic domains, e.g. phases or otherwise. Hansen (2012) documents cases where sentences may use different word orders to highlight different semantics: aspect, irrealis, object definiteness, focus, etc. under the general framework of discourse transitivity (Hopper and Thompson 1980). Gyumri and Akhalkalaki show an extreme case where *affix order* is used for such a purpose.

This requires the *Late Linearization* and *Late Realization* of the INDC. The right order and shape must be based after the verb has been spelled out and after the entire sentence has been crafted, following any movements, focus placement, and interpreting information structure. This requires that affix-placement be *post-syntactic* for at least the INDC.

The intermingling of these phonological and syntactic factors with nuclear stress further complicates matters in Akhalkalaki. In Akhalkalaki, the morpheme is now realizable as a clitic on the stressed/focused constituent. This cliticization is clear when the stressed/focused item is not adjacent to the verb. For some speakers, cliticization is blocked if the verb is V-initial. This suggests that cliticization is relatively late in the derivation. Other speakers, however, do allow cliticization even for V-initial verbs.

The above generalizations and data are however still preliminary. We are still in a continuous process of fieldwork on these lects. We have found additional evidence of the prefix-switch interacting with i) morphological factors like multiple exponence and word-minimality, ii) phonological factors like the final segment in the preverbal item, iii) syntactic factors like ditransitives, sentential adverbs, coordination, unaccusative verbs, iv) prosodic factors like post-verbal items, polar questions, and verb focus, and v) variation among speakers and the liability of attrition. One possible discovery is the ability of V-initial verbs to optionally undergo a *suffix-switch* or to optionally undergo the displacement of the prefix onto a focused item.

We suspect that the development of the prefix-switch was motivated by language internal change and dialect leveling. There may have been indirect language contact with other languages of the South Caucasus that have similar clitic patterns. Clearly, our work is cut out for us.

References

- Baronian, Luc. 2017. Two problems in Armenian phonology. *Language and Linguistics Compass* 11:e12247.
- Borise, Lena, and Maria Polinsky. 2018. Focus without movement: syntax-prosody interface in Georgian. *Proceedings of North-East Linguistic Society (NELS)* 48.
- Cheng, Lisa Lai-Shen, and Laura J Downing. 2016. Phasal syntax= cyclic phonology? *Syntax* 19:156–191.
- Fulmer, S Lee. 1991. Dual-position affixes in afar: An argument for phonologically driven morphology. In *Proceedings of the Ninth West Coast Conference on Formal Linguistics.*, ed. A. L. Halpern, 189–203. Stanford: CSLI.
- Fulmer, Sandra Lee. 1997. Parallelism and Planes in Optimality Theory: Evidence from Afar. Doctoral dissertation, University of Arizona, Tucson, AZ.
- Hansen, Cynthia I. A. 2012. Exploiting syntax to circumvent morphology: word order as a means for marking grammatical categories. In *Language Documentation and Description*, ed. N. Burenhult, A. Holmer, A. Karlsson, H Lundström, and J. Svantesson, volume 10 of *Special Issue on Humanities of the lesser-known: New directions in the description, documentation and typology of endangered languages and musics*, 288–306. London: SOAS.
- Harris, Alice C. 2002. *Endoclitics and the Origins of Udi Morphosyntax*. Oxford University Press on Demand.
- Hopper, Paul J., and Sandra A. Thompson. 1980. Transitivity in grammar and discourse. *Language* 251–299.
- Inkelas, Sharon. 1989. Prosodic Constituency in the Lexicon. Doctoral dissertation, Stanford University, Stanford, California.
- Kahnemuyipour, Arsalan. 2009. *The Syntax of Sentential Stress*. Number 25 in Oxford Studies in Theoretical Linguistics. Oxford: Oxford University Press.
- Kahnemuyipour, Arsalan, and Karine Megerdooimian. 2017. On the positional distribution of an Armenian auxiliary: Second-position clisis, focus, and phases. *Syntax* 20:77–97.
- Kim, Yuni. 2010. Phonological and morphological conditions on affix order in Huave. *Morphology* 20:133–163.
- Kim, Yuni. 2015. Mobile affixation within a modular approach to the morphology-phonology interface. In *Affix Ordering across Languages and Frameworks*, ed. S. Manova, 111–123. New York: Oxford University Press.
- Kratzer, Angelika, and Elisabeth Selkirk. 2007. Phase theory and prosodic spellout: The case of verbs. *The Linguistic Review* 24:93–135.
- Megerdooimian, Karine. 2009. *Beyond Words and Phrases: A Unified Theory of Predicate Composition*. VDM, Verlag Dr. Müller.
- Nakipoğlu, Mine. 2009. The semantics of the Turkish accusative marked definites and the relation between prosodic structure and information structure. *Lingua* 119:1253–1280.
- Nakipoğlu, Mine. 2019. Towards a model of the relation between prosodic structure and object displacement in Turkish. In *Word Order in Turkish*, 261–284. Springer.
- Noyer, Rolf. 1994. Mobile affixes in Huave: Optimality and morphological wellformedness. In *Proceedings of the Twelfth West Coast Conference on Formal Linguistics. Stanford: CSLI*, ed. E. Duncan, D. Farkas, and P. Spaelti, 67–82. Stanford: CSLI.
- Paster, Mary. 2006. Phonological Conditions on Affixation. Doctoral dissertation, University of California, Berkeley, Berkeley, CA.
- Paster, Mary. 2009. Explaining phonological conditions on affixation: Evidence from suppletive allomorphy and affix ordering. *Word structure* 2:18–37.
- Sigler, Michele. 1997. Specificity and agreement in standard Western Armenian. Doctoral dissertation, Massachusetts Institute of Technology.
- Üntak-Tarhan, Aslı. 2006. Topics in syntax-phonology interface in Turkish: Sentential stress and phases. Unpublished MA thesis, Bogaziçi University.
- Vaux, Bert. 1995. A problem in diachronic Armenian verbal morphology. In *New Approaches to Medieval Armenian Language and Literature*, ed. J. Weitenberg, 135–148. Amsterdam: Rodopi.
- Vaux, Bert. 1998. *The phonology of Armenian*. Oxford: Clarendon Press.
- Vaux, Bert. 2007. Homshetsma: The language of the Armenians of Hamshen. In *The Hemshin: History, Society and Identity in the Highlands of Northeast Turkey*, ed. H. Simonian, 257–278. London and New York: Routledge.

Department of Linguistics
 University of Pennsylvania
 Philadelphia, PA 19104
 nikitab@sas.upenn.edu
 hossep.dolatian@stonybrook.edu