MOBILE AFFIXES ACROSS ARMENIAN
CONFLICTS ACROSS LINGUISTIC MODULES

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University of Pennsylvania & Stony Brook University
Greetings

Nikita Bezrukov (UPenn)
Morpho-syntactician

Me (Stony Brook)
Morpho-phonologist
Affix Order (cross-linguistically)

- Distributing affixes
- ‘Stable’: a prefix stays a prefix
- Determined by
  - templates
  - scope
  - diachrony
  - ...

Armenian twist
- Primarily suffixing
- ‘Deviant prefix’
- Depending on dialect...
  - stays a prefix
  - ... switches to suffix
  - ... switches to clitic
  - Accesses multiple modules
Affix Order (cross-linguistically)
• Distributing affixes
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Background on Armenian

- Genetics: Indo-European language (independent branch)
- Relevant typology:
  1. SOV & primarily suffixing
  2. Preverbal focus position
  3. Sentential stress like Persian & Turkish
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- Focus:
  - Fieldwork on 4 dialects of Western Armenian

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<th>Gyumri</th>
<th>Akhalkalaki</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Was spoken’</td>
<td>Istanbul</td>
<td>Trabzon (OE)</td>
<td>Erzurum (OE)</td>
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</tr>
<tr>
<td>‘Now spoken’</td>
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      - Akhalkalaki Erzurum (OE)
    - ‘Now spoken’ Dispersed
      - Abkhazia, Georgia
      - Armenia
      - Georgia
    - Placement of present indicative ‘g’
**Take-away**

- INDC overview:
  - Prefix in Medieval Western + Most Modern Western dialects
  - Prefix-suffix switch in 3 dialects

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- Placement of indicative ‘g’ determined by M+P+S
Take-away

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- Placement of indicative ‘g’ determined by M+P+S

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<tbody>
<tr>
<td>Position:</td>
<td>Fixed</td>
<td></td>
<td>Mobile</td>
<td></td>
</tr>
<tr>
<td>Determined by:</td>
<td>Morphology</td>
<td></td>
<td></td>
<td></td>
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<td>Phonology</td>
<td></td>
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<tr>
<td></td>
<td>Syntax</td>
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<td></td>
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<tr>
<td></td>
<td>Prosody</td>
<td></td>
<td></td>
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</table>
**Take-away**

- Placement of indicative ‘g’ determined by M+P+S

**Gyumri**

(1) ara-n  girkʰ-ə  ʰtsaxe-gə
Ara-DEF book-DEF INDC-sells
‘Ara sells the book’
● Placement of indicative ‘g’ determined by M+P+S

Gyumri

(5) ara-n girl^h^a ^t^saxe-gə
Ara-DEF book-DEF INDC-sells
‘Ara sells the book’

(6) ov girl^h^a kə-^t^saxe
who book-DEF INDC-sells
‘Who sells the book?’
**Take-away**

- Placement of indicative ‘g’ determined by M+P+S

**Gyumri**

(9) ara-n girk₇-ə ñtsaxe-ğə
Ara-DEF book-DEF INDC-sells
‘Ara sells the book’

(10) ov girk₇-ə kə-ţiṣaxe
who book-DEF INDC-sells
‘Who sells the book?’

**Akhalkalaki**

(11) ara-n girk₇-ə ñtsaxe-ğə
Ara-DEF book-DEF INDC-sells
‘Ara sells the book’

(12) vev-ğə girk₇-ə ţiṣaxe
who book-DEF INDC-sells
‘Who sells books?’
**Take-away**

- Placement of indicative ‘g’ determined by M+P+S

**Gyumri**


**Akhalkalaki**


(16) vev-gə girkʰ-ə tısaxe who book-DEF INDC-sells ‘Who sells books?’

**Disclaimer:**

- **Position:** Focus on affix *position*, not shape
- **Sound changes:** affix looks slightly different across the dialect
- **Formalization:** Simple rules in talk, OT in appendix
• Introduction

• Standard Western: Fixed

• Hamshen: Phonologically mobile

• Gyumri: Phono-Syntactically mobile
  • Gyumri and phase-based domains

• Akhalkalaki: Prosodic clisis

• Discussion & Conclusion

• Appendix

• Conclusion
Standard Western: Fixed

- Present Subjunctive is bare verb + AGR/T
- Present Indicative marked by adding prefix ‘g(a)-’

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Why a prefix?

- Diachrony: frozen preverbal VP
  
  \textit{kaj ev} ‘exists and ...

- Synchrony:
Why a prefix?

- **Diachrony**: frozen preverbal VP
  
  *kaj ev* ‘exists and ...’

- **Synchrony**: arbitrary
  
  Armenian is suffixing

- **Inventory**: INDС → {g-}
**Standard Western – why and how**

Why a prefix?
- Diachrony: frozen preverbal VP
  \(kaj\ ev\) ‘exists and ...'
- Synchrony: arbitrary
  Armenian is suffixing
- Inventory: \(\text{INDC} \rightarrow \{g\}\)

Why \(g\)- vs. \(g\@\)-?
- Morphology: use prefix
- Phonology: no complex onsets
  insert \(\varepsilon\) to repair
Standard Western — why and how

Why a prefix?
- Diachrony: frozen preverbal VP
  \( kaj \ ev \) ‘exists and ...'
- Synchrony: arbitrary
  Armenian is suffixing
- Inventory: \( \text{INDC} \rightarrow \{g\} \)

Why \( g- \) vs. \( g\@- \)?
- Morphology: use prefix
- Phonology: no complex onsets
  insert \( \varepsilon \) to repair

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<th>Phonology</th>
<th>Output</th>
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<tbody>
<tr>
<td>arnes kales</td>
<td>arnes ( \text{INDC} \rightarrow {g} )</td>
<td>Schwa epenthesis</td>
<td>g-arnes g@-kales</td>
</tr>
</tbody>
</table>

- Alternative: OT with \text{ALIGN+DEP} in appendix
Hamshen: Phonologically mobile

- Subjunctive is bare verb + AGR/T across all four dialects
- Indicative marked by adding prefix ‘g-’ or suffix ‘-gu’

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Hamshen — Why and How

Why g- vs. -gu?

- **Inventory:** \text{INDC} \rightarrow \{g-, -gu\}
- **Phonology:** Prefix for V-initial
  
  Provide Onset
- **Morphology:** Use suffixes (elsewhere)
Hamshen – why and how

Why g- vs. -gu?

- Inventory: \( \text{INDC} \rightarrow \{g-, -gu\} \)
- Phonology: Prefix for V-initial
  
  Provide \text{ONSET}

- Morphology: Use suffixes (elsewhere)

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<td>Prefix for V-initial</td>
<td>Suffix elsewhere</td>
<td>( \text{INDC} = {g-, -gu} )</td>
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<tr>
<td></td>
<td>\text{arnes}</td>
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- Alternative: OT with \text{ALIGN+ONSET}
**GYUMRI: PHONO-SYNTACTICALLY MOBILE**

- Like Hamshen, Gyumri has affix order based on phonology (by default)

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Like Hamshen, Gyumri has affix order based on phonology (by default)

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*But...* C-initial switches to *prefix* for:

- Aspect
- Locatives
- Object specificity
- Adverbs
- Focus

*Because of* changes in

- Predicate structure (phases)
- [Sentential stress](#)
- Foregrounding (discourse transitivity)
By default, Gyumri has \( k \)- for V-initial and \(-g\@\) for C-initial

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But for *aspect*...
Gyumri – Aspect

- By default, Gyumri has \( k \)- for V-initial and -\( g@ \) for C-initial

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- But for aspect...

**Progressive**

V-initial verbs take prefix

(21) \( s\text{un-}\theta \) \( k \)-artnana

\( \text{dog-DEF INDC-wake.up} \)

‘The dog is waking up’

C-initial verbs take suffix

(22) \( s\text{un-}\theta \) \( \underline{vaze-}g@ \)

\( \text{dog-DEF run-INDC} \)

‘The dog is running’

Disclaimer: voicing varies by speaker/context
GYUMRI — ASPECT

- By default, Gyumri has $k$- for V-initial and -gə for C-initial

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- But for *aspect*...

  **Progressive**
  V-initial verbs take prefix
  
  (25) ʃun-ə  k-artnana
  dog-DEF INDC-wake.up
  ‘The dog is waking up’

  C-initial verbs take suffix
  
  (26) ʃun-ə  vaze-gə
  dog-DEF run-INDC
  ‘The dog is running’

  **Habitual**
  V-initial verb takes prefix
  
  (27) ʃun-ə  k-artnana
  dog-DEF INDC-wake.up
  ‘... (habitually)’

**Disclaimer:** voicing varies by speaker/context
GYUMRI — ASPECT

• By default, Gyumri has $k$- for V-initial and -gə for C-initial

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• But for aspect...

Progressive
V-initial verbs take prefix

(29) ʃun-ə k-artsnana
dog-DEF INDC-wake.up
‘The dog is waking up’

C-initial verbs take suffix

(30) ʃun-ə vaze-gə
dog-DEF run-INDC
‘The dog is running’

Habitual
V-initial verb takes prefix

(31) ʃun-ə k-artsnana
dog-DEF INDC-wake.up
‘... (habitually)’

C-initial verbs switch to $kə$-

(32) ʃun-ə kə-vaze
dog-DEF INDC-run
‘...(habitually)’

• Disclaimer: voicing varies by speaker/context
By default, Gyumri has *k*- for V-initial and *-gə* for C-initial

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But for *locatives*...

**Without**

C-initial verbs take suffix

(33) ʃun-ə vaze-gə

dog-DEF run-INDC

‘The dog is running’

**With**

C-initial verbs switch to *kə-*

(34) ʃun-ə dun kə-vaze

dog-DEF home INDC-run

‘The dog is running home’

Bare locative takes *sentential stress*
Armenian syntax 101 – Example from Standard

- All Armenian dialects are SOV

**Basic sentence**

- Past tense doesn’t use INDC
- NOM and ACC are zero
- DEF is -n after V, -ə after C
- Sentential stress on V if O is DEF (like Persian)
- *But* could be topicalization because some people can stress DEF O (like Turkish)

(35) ara-n kirk-ə ǳaxetš
Ara-DEF book-DEF sold
‘Ara sold the books’
All Armenian dialects are SOV

Basic sentence

- Past tense doesn’t use INDC
- NOM and ACC are zero
- DEF is -n after V, -ә after C
- **Sentential stress** on V if O is DEF (like Persian)
- *But* could be topicalization because some people can stress DEF O (like Turkish)

(37) ara-n kirk-ә Ԁzaxet$\tilde{s}$

Ara-DEF book-DEF sold

‘Ara sold the books’

Bare objects

- O without DEF
- interpreted as generic plural
- inside verbal predicate
- Takes sentential (Persian+Turkish) stress

(38) ara-n kirk Ԁzaxet$\tilde{s}$

Ara-DEF book book sold

‘Ara sold books’
### Gyumri – Object Specificity

- By default, Gyumri has *k-* for V-initial and *-gә* for C-initial

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- ‘you take’
- ‘you walk’

- But for *object specificity*...

**Definite object**

C-initial verbs take suffix

<p>| | |</p>
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<td>ara-n</td>
<td>girкʰ-ә</td>
</tr>
<tr>
<td>Ara-DEF</td>
<td>book-DEF</td>
</tr>
<tr>
<td>sells-INDC</td>
<td></td>
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‘Ara sells the book’

**Bare object**

C-initial verbs switch to *kә-*

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<td>ara-n</td>
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</tr>
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<td>Ara-DEF</td>
<td>book INDC-sells</td>
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‘Ara sells books’

- Correlates with *DEF object topicalization*
Gyumri – Adverbs

- By default, Gyumri has $k$- for V-initial and -$g$ə for C-initial Indicative

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<td>keles-$g$ə</td>
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- But for adverbs...

No adverb

C-initial verbs take suffix

(41) ara-$n$ girl$h$-ə ̃tsaxe-$g$ə

Ara-DEF book-DEF sells-INDC

‘Ara sells the book’

Manner adverb

C-initial verbs switch to $k$ə-

(42) ara-$n$ girl$h$-ə lav $k$ə-̃tsaxe

Ara-D book-D well INDC-sells

‘Ara sells the book well’
Gyumri – Focus & Questions

- By default, Gyumri has $k$- for V-initial and -$g\theta$ for C-initial

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- But for focus...

**Focus-neutral**

C-initial verbs take suffix

(43) $\underline{\text{j}}\text{un-}\theta$ vaze-$g\theta$

dog-DEF run-INDC

‘The dog is running’

**Narrow focus ($Q&A$)**

C-initial verbs switch to $k\theta$-

(44) ov $k\theta$-vaze

who INDC-run

‘Who is running?’

(45) $\underline{\text{j}}\text{un-}\theta$ $k\theta$-vaze

dog-DEF INDC-run

‘The DOG is running’
By default, Gyumri has \( k- \) for V-initial and \(-g\) for C-initial

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But for focus...

**Focus-neutral**
C-initial verbs take suffix

\( \text{fun-}\_\text{vaze-}\_\text{g} \)

‘The dog is running’

**Narrow focus** (Emphatic clitics)
C-initial verbs switch to \( k\)-

\( \text{kadu-n-}\_\text{el} \_\text{ka-vaze} \)

‘The cat is also running’
By default, Gyumri has $k$- for V-initial and $\text{-g}\theta$ for C-initial

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<td>keles-$\text{-g}\theta$</td>
</tr>
</tbody>
</table>

But for focus...

**Focus-neutral**
C-initial verbs take suffix

(48) ara-n  $\text{girk}^h\theta$-$\tilde{\text{tsaxe-g}\theta}$

Ara-D book-D sells-IN

‘Ara is selling the book’

**Narrow focus** (*stress non-adjacent*)
C-initial verbs switch to $k\theta$-

(49) marja-n-el  $\text{girk}^h\theta$-$\text{k}\theta$-$\tilde{\text{tsaxe}}$

Maria-D-also book-D IN-sells

‘Maria is also selling the book’
Gyumri – Recap

- What happened?
  - Inventory: \( \text{INDC} \rightarrow \{k-, -gə\} \)
  - Phonology: prefix if V-initial
  - Syntax: prefix for some reason
  - Morphology: suffix elsewhere

- ... But why?
  1. The verbal predicate changes or looks “larger”
  2. Explain with syntactic domains
  3. Look like phases, but post-cyclic
GYUMRI — RECAP

● What happened?
  ▶ Inventory: INDC $\rightarrow \{k-, -gə\}$
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  ▶ Syntax: prefix for some reason
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● What syntactic-semantic factors trigger a prefix?

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● ... But why?
**GYUMRI — Recap**

- **What happened?**
  - Inventory: \( \text{INDC} \rightarrow \{k-, -qә\} \)
  - Phonology: prefix if V-initial
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- **... But why?**
  1. The verbal predicate changes or looks “larger”
  2. Explain with syntactic domains
  3. *Look* like phases, but post-cyclic
Phases and Armenian

What’s a phase?

= syntactic cycles for computation and **prosody**
  * vP and FocP
**Phases and Armenian**

What’s a phase?

- syntactic cycles for computation and **prosody**
- vP and FocP
- Armenian objects start out as complement in VP inside vP

(51) ara-n kirk òdzaxets

Ara-DEF book sold

‘Ara sold books’
What’s a phase?

= syntactic cycles for computation and prosody

- vP and FocP
- Armenian objects start out as complement in VP inside vP
- DEF objects move out
  - Debate: AgrP, ObjP, spec-vP?
  - Agnostic: XP outside lowest vP (and stress)

(52) ara-n kirk-ə .propTypes
Ara-DEF book-DEF sold
‘Ara sold the book’
GYUMRI AND PHASES

- What’s a phase?
  - Syntactic cycle for computation and prosody
  - $vP$ and $FocP$

Aspect Locative Object Adverb Focus
Prefix Habitual 3
Suffix Progressive 7

All cases involve the verbal predicate changing or expanding → phase is bigger than just a single $V$ in $vP$

Aspect: potentially (invisible) AspP inside $vP$

Functionalist alternative (discourse transitivity) → Use prefix if phase is larger than $V$
Gyumri and phases

- What’s a phase?
  - Syntactic cycle for computation and prosody
  - vP and FocP

- Recall where the Gyumri prefix is unexpectedly used

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- Aspect:....
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  - Functionalist alternative (discourse transitivity)
→ Use prefix if phase is larger than $V$
Object specificity in Gyumri?

- Bare object stays in VP
- Switch to prefix if vP got any bigger than just V

(53) ara-n  
girk\(^{h}\)  
kə-\(\tilde{t}\)saxe
Ara-DEF book-DEF sell-INDC
‘Ara sells books’
Object specificity in Gyumri?

- Bare object stays in VP
- DEF object moves out
- Stay suffix is vP is just V

(54) ara-n  girl$^h$-ə  他表示saxe-gə
Ara-DEF book-DEF sell-INDC
‘Ara sells the book’
Cycles vs. domain

But... Does Gyumri need phases as *cycles* or *domains*?
Cycles vs. Domain

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- Phase: syntactic cycles
  1. Cycle: stage in a derivation
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- ~Lexical Phonology in Morpho-phonology

Gyumri indc is inserted very late → assume domains
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  (Kahnemuyipour, 2009)
  1. iteratively build up a phase
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  1. syntax makes the final tree
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Gyumri INDC is inserted very late → assume domains
GYUMRI — WHY AND HOW

Why k(ə)- vs. -gə?

- **Inventory:** \( \text{INDC} \rightarrow \{k-, -gə\} \)
- **Phonology:** Prefix for V-initial
  - Insert ə in clusters
- **Syntax:** Prefix if larger phase
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<td>Prefix for V-initial</td>
<td>Prefix in larger phase</td>
<td>Suffix elsewhere</td>
<td>INDC={k-, -gə}</td>
<td>Schwa epenthesis</td>
<td></td>
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<tr>
<td>O(_{\text{DEF}}) ([vP ; \hat{\text{tsaxe}}])</td>
<td>(vP ; \hat{\text{tsaxe}})</td>
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<td>(O ; k-\hat{\text{tsaxe}})</td>
<td>(O ; kə-\hat{\text{tsaxe}})</td>
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- **Alternative:** OT with **ALIGN+ONSET+PHASE EXPANSION**
### Akhalkalaki: Prosodic Clisis

- Akhalkalaki has affix order based on phonology (by default) too.

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- Like Gyumri, Akhalkalaki has the affix switch because of info. structure.
**Akhalkalaki: Prosodic clisis**

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**Gyumri** has switch to prefix for  

**Akhalkalaki** switches too

- Aspect
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- Like Gyumri, Akhalkalaki has the affix switch because of info. structure

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    - Aspect
    - Locatives
    - Object specificity
    - Adverbs
    - Focus
  - Akhalkalaki switches too
    - not Aspect, but Mood
  - But cliticizes onto sentential stress if “far”
Akhalkalaki – stress adjacency

- Akhalkalaki and Gyumri have affix switch in (mostly) identical contexts
  = changed or larger predicate (post-cyclic phase)
Akhalkalaki — stress adjacency

- Akhalkalaki and Gyumri have affix switch in (mostly) identical contexts
  - changed or larger predicate (post-cyclic phase)
- Change in predicate coincides with change in stress:
  - Object specificity: \( S \; O\text{-DEF} \; \underline{[V]} \) vs. \( S \; \underline{[O} \; V \]
  - Focus: \( S \; \underline{[V]} \) vs. \( \underline{[S} \; V \]

**Focus-neutral**

C-initial verbs take suffix

(57) \( \underline{\text{ʃun-ə}} \underline{\text{vaze-\text{gə}}} \)

\( \text{dog-DEF run-INDC} \)

‘The dog is running’

**Narrow focus (stress adjacent)**

C-initial verbs switch to \( gə-\)

(58) \( \underline{\text{kadu-n-a}} \underline{\text{gə-vaze}} \)

\( \text{cat-DEF-also INDC-run} \)

‘The cat is also running’
• Akhalkalaki and Gyumri have affix switch in (mostly) identical contexts = changed or larger predicate (post-cyclic phase)

• Change in predicate coincides with change in stress:
  ‣ Object specificity: \( S \ O-\text{DEF} \ [V] \) vs. \( S \ [O \ V] \)
  ‣ **Focus:** \( S \ [V] \) vs. \( [S \ V] \)

• Akhalkalaki twist: if affix is “far” from stressed XP, cliticize onto it
  ‣ Prosodic = adjacent to sentential stress
  ‣ Clisis = cliticize if far, otherwise stay a prefix

**Focus-neutral**

C-initial verbs take suffix

\[(59) \text{ ara-n girk}^{h-\varepsilon} \hat{\text{tsaxe-g}\varepsilon} \]

Ara-D book-D sells-IN

‘Ara is selling the book’

**Narrow focus (stress non-adjacent)**

Affix jumps to focused constituent

\[(60) \text{ marja-n-a-g}\varepsilon \text{ girk}^{h-\varepsilon} \hat{\text{tsaxe}} \]

Maria-D-also-IN book-D sells

‘Maria is also selling the book’
Akhalkalaki — why and how

Why $g(ə)$- vs. -$gə$?

- **Inventory**: $\text{INDC} \rightarrow \{g-, -gə\}$
- **Phonology**: Prefix for V-initial
- **Syntax**: Prefix if larger phase
- **Prosody**: Move to stress
- **Morphology**: Use suffixes (elsewhere)
Akhalkalaki — why and how

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<th>$[\text{FocP} S \text{ kales}]$</th>
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<td>Phonology</td>
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</tr>
<tr>
<td>Morphology</td>
<td>Suffix elsewhere</td>
<td>S $[\text{kales-INDC}]$</td>
</tr>
<tr>
<td>Spell-out</td>
<td>$\text{INDC} = {g-, -gə}$</td>
<td>S $[\text{kales-}gə] [ S \text{ g-kales} ]$</td>
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<td>Phonology</td>
<td>Schwa epenthesis</td>
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- **Alternative:** OT with $\text{ALIGN+ONSET+\text{PHASE EXPANSION+STRESS ADJ}}$
Akhalkalaki — why and how

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<td>Prefix in larger phase</td>
<td>Move to stressed</td>
<td>Suffix elsewhere</td>
<td>INDC={g-, -gə}</td>
<td>Schwa epenthesis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S ... [(vP) kales]</td>
<td>[(FocP) S ... kales]</td>
<td></td>
<td>S ... [(\quad\text{kales-INDC})]</td>
<td>S ... [(\quad\text{kales-gə})]</td>
<td>S ... [(\quad\text{S-gə ... kales})]</td>
<td></td>
</tr>
</tbody>
</table>

- Alternative: OT with `ALIGN+ONSET+PHASE_EXPANSION+STRESS_ADJ`

\[\text{\textbf{Input}} \rightarrow \text{\textbf{Output}}\]
• Affix is ordered based on *many* factors across dialects

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Wrap-up

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- **Phonological Pandora’s Box**: phono mobility can lead to syntactic mobility
Wrap-up

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- **Phonological Pandora’s Box**: phono mobility can lead to syntactic mobility

- **Phase-based domains**: affix is ordered based on phases but *late*
Wrap-up

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- **Phonological Pandora’s Box**: phono mobility can lead to syntactic mobility

- **Phase-based domains**: affix is ordered based on phases but *late*

- **All-together**: Affix order is *multi-modular*
Acknowledgements

(61) mersi-ner gazmagerboq-ner-u-n
merci-PL organizers
‘Thank you to the organizers’

(62) jev Bərt-i-n
and Bert
‘And Bert Vaux’

(63) jev Karen-i-n + Eteri-[j]i-n + Harut-i-n + Gohar-i-n + amen-u-n
and Karen + Eteri + Harut + Gohar + everyone
‘And to our informants and everyone’


** References **


[Paster 2006] Paster, Mary: Phonological conditions on affixation.