Weight-sensitive prosodification of prefixes in Karuk

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Karuk: polysynthetic isolate, northern California.

Broad question: **how do verb agreement prefixes prosodify?**

Sandy 2017: some prefixes are **cohering** (i.e. prosodify with the stem); other prefixes are **non-cohering.**

Audio data reveal **divergences from Sandy 2017**, with implications for **morphosyntax-prosody mapping**:

1. Prosodic word edge placement is phonologically optimizing:

- The **shape of the stem** affects whether the prefix ***kii(k)-*** coheres or not.
- **Syllable weight** affects word edge placement (following Kumaran 2023).

2. No evidence of a PStem layer below ω.

3. Whether a prefix coheres is not arbitrary but entirely predictable based on morphosyntactic and phonological factors (contra Sandy 2017, 2018)

Background: Tone and word-level prosody in Karuk (Sandy 2017)

The basic tone contour

Words bear a **low initial tone**, a span of **high tone through the stressed syllable**, and **low tone afterwards**:

(1) na.ni.**chí.**shiih
L H H L
'my dog'

If the **initial** syllable is **stressed**, this **overrides** the initial tone:

(2) **sáan**.fu.ru.ki
H L L L
'bring it in!'

Similarly, a final stressed syllable receives high tone:

(3) 'ak.**váat**
L H
'raccoon'

Stress in derived words

In derived words lacking input tone:
Stress precedes the rightmost heavy syllable (heavy = containing a long vowel)

(4) kun.pa.xee.**pá**.yaach.ha
L H H H L L
'they won it from them'

If the only heavy syllable is initial, stress is initial (as in (2)). Otherwise stress is **penultimate** (5), else on a monosyllable.

(5) ax.**rá**.tip
L H L
'gooseberry bush'

Kumaran's (2023) proposal: stress prefers to be **penultimate** within **ω**; the optimal ω **ends in a heavy syllable**:
[ax.**rá**.tip]$_{\omega}$ [kun.pa.xee.**pá**.yaach]$_{\omega}$.ha

(Non-)cohering prefixes

Sandy (2017): some prefixes are **cohering,** i.e. **inside the PStem;** others are **non-cohering**, i.e. **outside the PStem**.

When the stem is monosyllabic or its sole heavy syllable is initial, cohering prefixes receive stress (6) (following the basic stress pattern for derived words) but **non-cohering prefixes do not** (7).

(6) **[[**ná.par **]$_{\text{PStem}}$]$_{\omega}$**
H L
'you bite me'

(7) **[**nu.**[**pár **]$_{\text{PStem}}$]$_{\omega}$**
L H
'I bite you'

Claimed **evidence for PStem ≠ ω**: no stem-initial L tone in cases like (7)

(7) **[**ku.n**[**i.**pí**.tih**]$_{\text{PStem}}$]$_{\omega}$**
L H* H L (* Sandy's claim)
'they say'

Our findings (manually annotated *Ararahih'urípih* corpus data)

The cohering / non-cohering distinction is real

Light prefixes behave as expected when the stem is monosyllabic or its sole heavy syllable is initial. Cohering prefixes receive H tone and non-cohering prefixes receive L tone:

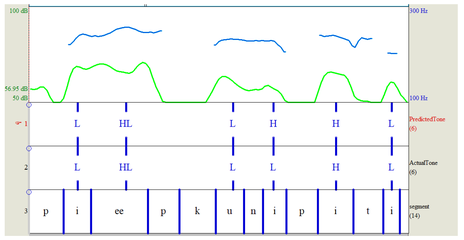
non-cohering prefix	count	count with L tone
i-	2	2
ku-	2	1
kun-	8	7 (+1 HL)
ni-	16	13
nu- (basic)	15	13
u-	5	3
total	48	39 (+1 HL)

cohering prefix	count	count with H tone
kan-	1	1
kin-	1	0
na-	8	8
nu- (optative)	3	3
total	10	9

Of the 9 counterexamples above, 7 are preceded by perfective ***ta=***. *Ta=* shows additional idiosyncrasies (ask me), so overall, **the cohering / non-cohering classification is very robustly supported by the data.**

PStem = ω

In contexts like (7), **the predicted rise in tone on the second syllable fails to occur** in 7 of 8 instances, suggesting that **non-cohering prefixes are excluded from ω, and the PStem layer is unnecessary.**



Heavy prefixes show unexpected stress

One prefix is underlyingly heavy: *kii(k)-*.
Derived heavy prefixes: *oo-* and ***ee-*** (underlyingly *u-* and *i-*).
These 3 prefixes are **non-cohering** per Sandy, **but they receive H tone** when the stem is monosyllabic or its sole heavy syllable is initial.

'non-cohering' prefix	count	count with H tone	count with stem-initial L tone
kii(k)-	9	9	8 (+1 HL)
ee-	7	7	0
oo-	14	9	3
total	30	25	11 (+1 HL)

***Kii(k)-* is actually cohering**: it has H tone and the stem has L tone. Consequence: non-cohering prefixes are a morphosyn. natural class (ask me).
The derived heavy prefixes form a separate ω: they generally have H tone but the stem also contains H tone.
Proposal: syllable weight allows prefix to form its own ω (BinMin).
Returning to ***kii(k)-***: when the stem is ***not*** monosyllabic / does ***not*** have an initial sole heavy syllable, ***kii(k)-* seems to form a separate ω** (H tone in 12 of 13 instances, 11 of which have H tone in the stem).
Proposal: Prefixes prefer to be separate ω (e.g. Peperkamp 1997). But if the stem's ω would be monosyllabic, it is better for *kii(k)-* to cohere to allow ω to have penultimate stress, which is optimal (Kumaran 2023).

/kiik-paatvi/	SP(ω_{STEM})	BinMin$_{\omega}$	*$\sigma_{\text{light}}]_{\omega}$	prefix=ω	Cohere$_{kii(k)-}$	Align(ω, stem)
→ [**kíik**.paat.]$_{\omega}$vi				*		**
[**kíik**.]$_{\omega}$[**páat**.]$_{\omega}$vi	*				*	*
[**kíik**.]$_{\omega}$[**páat**.vi]$_{\omega}$			*		*	

/kiik-pikaan/	SP(ω_{STEM})	BinMin$_{\omega}$	*$\sigma_{\text{light}}]_{\omega}$	prefix=ω	Coh.$_{kii(k)-}$	Align(ω, stem)
[**kíik**.pi.]$_{\omega}$kaan			*	*		**
[kiik.**pí**.kaan]$_{\omega}$				*		*
→ [**kíik**.]$_{\omega}$[**pí**.kaan]$_{\omega}$					*	