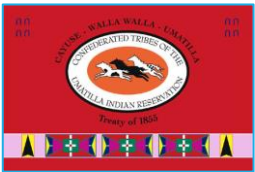


Stress-based truncation of loanwords in the Yuman languages

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Workshop on American Indigenous Languages (WAIL24)



Introduction

- I survey patterns of **loanword adaptation** among the **Yuman languages**.
- I show that Yuman languages **omit post-stress vowels** but preserve post-stress consonants in Spanish and (most) English loanwords.
 - Post-stress vowel truncation may produce non-native consonant clusters.
- I argue that functional pressures to maintain **word-final stress as a cue to word boundaries** drives post-stress vowel truncation in loanwords:
 - Stress tends to be **word-final** in native Yuman words.
 - Post-stress vowel truncation restores **word-final stress in loanwords**.
 - Word-final consonants are irrelevant; they are freely retained in loanwords.

The Yuman language family

The Yuman language family

- I focus on loanword adaptation in **10** languages of the **Yuman language family** (bolded in Figure 1).

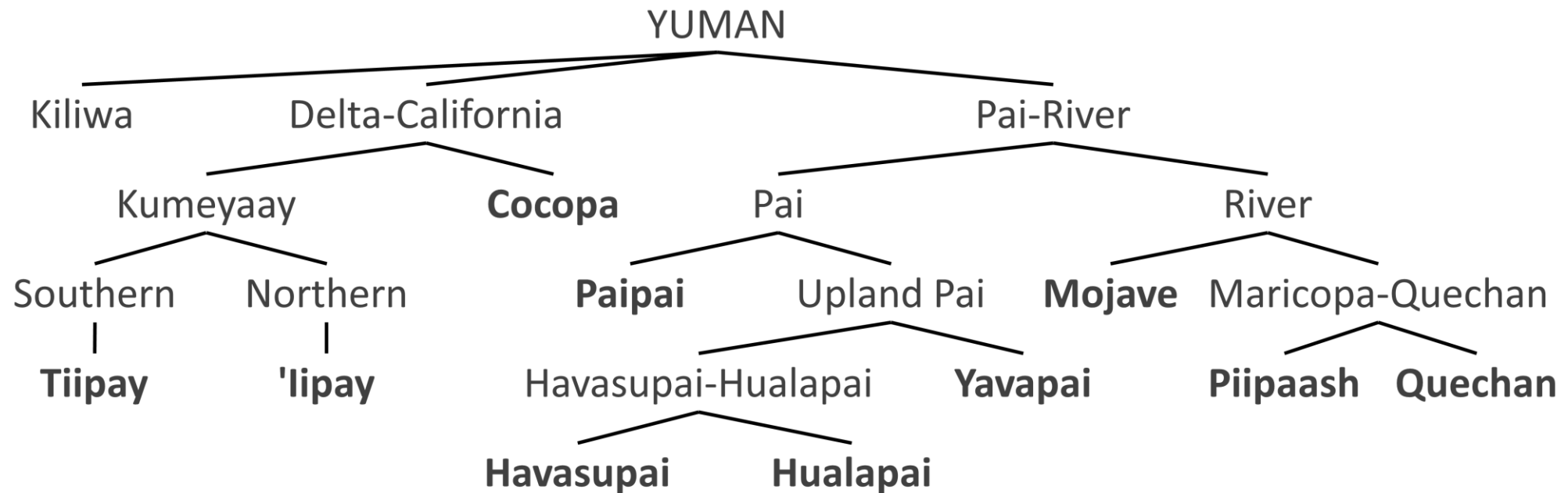
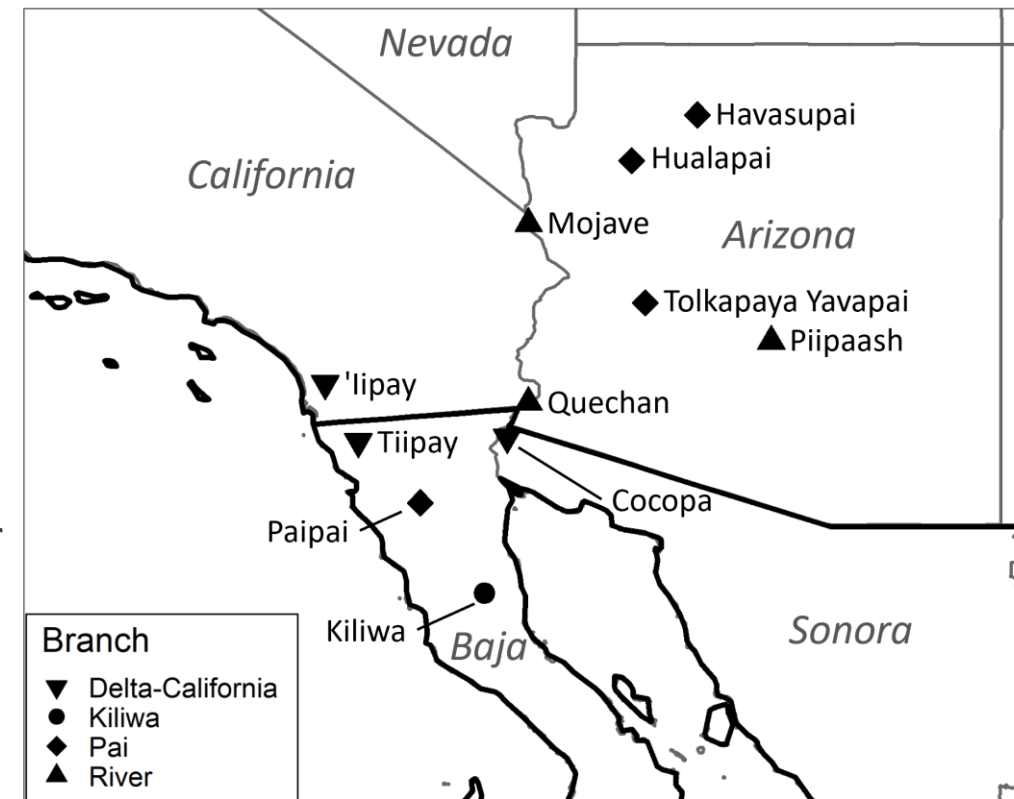


Figure 1. Yuman language family tree, simplified from Miller (2018). Languages surveyed here are in bold.

The Yuman language family

- The Yuman languages are spoken in the **southwestern United States** (California, Arizona) and **northwestern Mexico** (Baja California, Sonora).
- **Language contact phenomena** are attested among Yuman communities (e.g. Hinton 1979, Powell and Geary 2021, Winter 1990), as well as between Yuman and other Indigenous communities (e.g. Hopi, O'odham), Spanish, and English.



Map 1. Distribution of Yuman languages.

Previous work on stress in Yuman

- I focus on how Yuman languages have adapted Spanish and English loanwords that exhibit **non-native stress patterns** to the canonical Yuman stress pattern.
- Yuman languages regularly stress **the root of native words** (Langdon 1977a).
- Because of the predominance of derivational prefixes, Yuman words tend to exhibit **word-final stress** (e.g. Kroeber 1943, Langdon 1977a, Wares 1968).
 - Derivational suffixes often consist of a single consonant (Langdon 1977a).
 - Langdon (1977b) reports on some historic reanalyses of suffixes that would add unstressed word-final syllables as prefixes on the following word in order to maintain word-final stress.
- Stress **does not typically occur on a word's final syllable** in Spanish (Harris 1983) or English (Cutler and Carter 1987), and so without adaptation many Spanish and English loanwords would violate the native Yuman stress pattern.....

Previous work on loanwords in Yuman

- Previous work has largely focused on patterns of borrowing in individual Yuman languages (i.e. rather than take a cross-Yuman perspective on borrowing).
- **Kiliwa** borrowed very few words from Spanish, reflecting historic Kiliwa resistance to colonization/missionization (Mixco 1977).
 - For this reason, I will not discuss loanword adaptation in Kiliwa.
- Many Spanish/English loans are found in Yuman languages (besides Kiliwa).
 - **Kumeyaay** and **Paipai** (Mixco 1977) and **Cocopa** (Crawford 1979) are known to have borrowed quite freely via direct contact with Spanish.
 - Spanish loanwords in **Hualapai/Upland Pai** were borrowed via Mojave and Hopi (Uto-Aztecan) rather than directly from Spanish (Winter 1990).

Previous work on loanword adaptation in Yuman

- Likewise, previous work on loanword adaptation has focused on how individual Yuman languages adapt words with non-native phonology.
- Phonetically similar native speech sounds often **but not always replace** non-native speech sounds in loanwords (e.g. Crawford 1979:122–123):
 - English *blouse* > Cocopa *bláws*
 - Spanish *barríl* ‘barrel’ > Cocopa *varíl* ~ *varí:l* ~ *waríl* ~ *warí:l*
 - Spanish *botón* ‘button’ > ‘lipay *botó:n*, Tiipay *botó:n*, Cocopa *mutó:n*
 - Spanish *café* ‘coffee’ > ‘lipay *kafé:*, Cocopa *kafí:*; Piipaash *kafé:*
cf. Mojave *kaθvé:* ~ *ka:θvé:*

Previous work on loanword adaptation in Yuman

- Likewise, previous work on loanword adaptation has focused on how individual Yuman languages adapt words with non-native phonology.
- Prior research has recognized that **post-stress vowels are often omitted**:
 - Cocopa regularly omits the “[v]owels of unstressed word-final syllables”. In contrast, the vowels of pre-stress syllables are usually retained except if the syllable consists only of that vowel (Crawford 1979:123–124).
 - 'lipay “omit[s] everything following the stressed syllable” (Langdon 1966:68).
 - In Tiipay, “post-stress vowels are usually deleted” in loans (Miller 2001:32).
- These generalizations do not capture the pan-Yuman nature of this type of loanword adaptation, nor how adaptation has changed over time.....

Survey of loanwords in Yuman

Survey of loanwords in Yuman

- I surveyed dictionary and other linguistic sources for Spanish and English loanwords in 10 Yuman languages from 3 branches.
 - **Delta-California:** 'Iipay (Couro and Hutcheson 1973), Tiipay (Miller 2001), Cocopa (Crawford 1989); **River:** Mojave (Munro et al. 1992), Piipaash (Langdon et al. 1991), Quechan (Quechan Language Program 2017); **Pai:** Paipai (Joël 1998), Havasupai (Hinton 1984), Hualapai (Watahomigie et al. 2003, Winter 1990), Yavapai (Munro and Fasthorse 1991)
 - Extensive dictionary sources are not available for many Yuman languages, so this should not be considered an exhaustive survey of loanwords in Yuman.
- I then analyze **how Yuman languages adapt loanwords with non-native stress patterns** (i.e. in having post-stress vowels) **to Yuman phonotactics.**

Survey of loanwords in Yuman

Table 1. Number of Spanish/English loans found in 10 Yuman languages.

| | Delta-California | | | River | | | Pai | | | |
|---------|--------------------------------------|-------------------------|---------------------------|-------------------------------|-----------------------------------|--|-----------------------|----------------------------|--|---------------------------------------|
| | 'Iipay (Couro and Hutcheson 1973) | Tiipay (Miller 2001) | Cocopa (Crawford 1989) | Mojave (Munro et al. 1992) | Piipaash (Langdon et al. 1991) | Quechan (Quechan Language Program 2017) | Paipai (Joël 1998) | Havasupai (Hinton 1984) | Hualapai (Watahomigie et al. 2003, Winter 1990) | Yavapai (Munro and Fasthorse 1991) |
| Spanish | 114 | 30 | 161 | 67 | 54 | 19 | 13 | 30 | 36 | 30 |
| English | 0 | 0 | 27 | 27 | 8 | 1 | 0 | 14 | 14 | 8 |

Post-stress vowel truncation: Spanish loans

- Yuman languages regularly omit post-stress vowels in Spanish loans.
- This is true of words with **penultimate stress** in Spanish, such as:
 - *hílo* ‘thread’ > Cocopa *ʔí:l*; Mojave *ʔí:l*; Paipai *ʔí:l*, Hualapai *aʔí:l*, Havasupai *aʔí:l-a*, Yavapai *ʔí:l-a*
 - *la mésa* ‘table’ > 'lipay *lamé:s*, Tiipay *la:mé:s*, Cocopa *lamí:s*; Mojave *lamés*, Piipaash *lamé:s*, Quechan *la:mé:s*
 - *vaquéro* ‘cowboy’ > 'lipay *vaké:r*, Cocopa *vaké:r*; Mojave *wa:kʷér*, Piipaash *pakʷé:r*; Paipai *vaké:r*, Yavapai *ma:ké:r-a*
- Note that many Upland Pai words take an unstressed absolutive suffix (e.g. -a) when they do not take another suffix (e.g. case, tense).

Post-stress vowel truncation: Spanish loans

- Yuman languages regularly omit post-stress vowels in Spanish loans.
- Although far fewer, this is also true of words that have **antepenultimate stress** in Spanish – multiple post-stress vowels are usually omitted:
 - *católico* ‘Catholic’ > Tiipay *kató:lk*
 - *máquina* ‘car, machine’ > 'lipay *má:kin*, Cocopa *má:kn*
 - *(el) sábado* ‘Saturday’ > Cocopa *nʷa-sá:wǎ* ~ *sá:wǎ*; Piipaash *elsá:v*, Quechan *sá:vǎ*
 - *Los Ángeles* ‘Los Angeles’ > Mojave *lo:sánk*

Post-stress vowel truncation: Spanish loans

- Yuman languages typically retain post-stress consonants in Spanish loans, which may introduce **non-native coda consonant clusters**:
 - *alámbr*e ‘wire’ > Cocopa *ʔalámbr* ~ *ʔalá:mr* ~ *ʔalámbr*
 - *puébl*o ‘town’ > 'lipay *pwé:bl*, Tiipay *pwé:l*
 - *úvas* ‘grapes’ > Cocopa *ʔú:vs*; Piipaash *ʔú:vs*
 - *católic*o ‘Catholic’ > Tiipay *kató:lk*
 - *chíchar*o ‘green peas’ > 'lipay *či:čar*, Cocopa *cícr*
 - *máquina* ‘car, machine’ > 'lipay *má:kin*, Cocopa *má:kn*
 - *(el) sábado* ‘Saturday’ > Cocopa *(nʷa-)sá:wǝ*; Quechan *sá:vǝ*

Post-stress vowel truncation: English loans

- Yuman languages sometimes omit post-stress vowels in English loans.
- This is true of words that have **penultimate stress** in English, such as:
 - *alfálfa* > Cocopa $\text{ʔalfálf} \sim \text{ʔalfá:ls}$; Mojave ʔalfá:lf ;
Havasupai alfʔálf-a
 - *spaghétti* > Piipaash $\text{spk}^{\text{y}}\text{á:t}$
- This is also true of words that have **antepenultimate stress** in English:
 - *Sómerton* > Cocopa $\text{sámt} \sim \text{sámṭ}$

Post-stress vowel truncation: English loans

- However, post-stress vowels are often retained in English loans:
 - *cábbage* > Mojave *kʰá:pič*
 - *kítty* > Cocopa *kíʎi* ~ *kíri*; Hualapai *kídi*, Havasupai *kíd*
 - *Mórmon* > Cocopa *mú:man*; Piipaash *mo:món*
 - *ápricot* > Piipaash *epkʰá:t*
- Stress also shifts to the final syllable in some loanwords, making the loan consistent with the native stress pattern:
 - *Návajo* > Mojave *ná:vaho* ~ *na:vahó*
 - *áutomobile* > Cocopa *?aruví:l*; Hualapai *?anóbil*, Havasupai *anbíl*

Interim summary

- Yuman languages **regularly omit post-stress vowels in Spanish loans**.
 - This is true even of vowels that are **not word-final** (cf. Crawford 1979).
 - Post-stress consonants are often retained, which may introduce **non-native coda consonant clusters** (in addition to non-native speech sounds).
- Yuman languages **less often omit post-stress vowels in English loans**.
 - In some English loans, stress instead **shifts to the final vowel**.
- English loanwords are more recent, and their adoption coincides with language attrition and shifts to bilingualism with English in many of the Yuman communities for which data on English loans is available.
 - These factors have likely contributed to the shift in adaptation strategies.

But why omit post-stress vowels?

Why do Yuman languages truncate post-stress vowels?

- Post-stress vowel truncation obviously serves to adapt loanwords that exhibit non-native stress patterns to the canonical Yuman stress pattern.
 - Omitting post-stress vowels make stress **word-final**, as is typical of Yuman.
 - Pre-stress vowels are irrelevant to whether the stressed vowel is word-final, and so they are frequently retained.
- Still, why do Yuman languages truncate post-stress vowels? No language is obligated to adapt loanwords to native phonological patterns:
 - They often retain non-native speech sounds (e.g. Crawford 1979, Langdon 1966).
 - Moreover, post-stress vowel truncation often introduces non-native clusters.

Segmentation and stress as a cue to word boundaries

- I hypothesize that Yuman languages omit post-stress vowels from loanwords in order to **preserve word-final stress as an indicator of word boundaries** and so facilitate spoken language processing.
- Speech consists of a **continuous** series of words without clear boundaries, and listeners must segment speech into discrete word-sized units (e.g. Cutler 2012).
- In languages w/ consistent stress placement, **listeners use stress to find word boundaries and segment speech** (e.g. Banel and Bacri 1994; Cutler and Butterfield 1990).
- Non-canonical stress patterns impede the ability to use stress to find word boundaries, but by omitting post-stress vowels Yuman speakers **restore stress to word-final position** and so can use stress to **facilitate language processing**.
 - These pressures likely drive historical reanalyses of syllabic suffixes as prefixes (Langdon 1977b).

Summary

- Yuman languages **typically omit post-stress vowels in Spanish/English loanwords** (although post-stress vowels are less often truncated in English loans).
 - In contrast, non-native speech sounds may be preserved in loanwords, while post-stress vowel truncation may introduce non-native consonant clusters.
- Stress tends to be **word-final** in native Yuman words, and so post-stress vowel truncation serves to adapt loanwords to native stress patterns.
- Thus, loanword adaptation maintains **stress as a cue to word endings**.
 - In languages with consistent stress placement relative to the beginning/end of the word, listeners use stress as a cue to word boundaries.
 - Consonants are irrelevant here, and so they need not be truncated in loans.

Thanks!

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