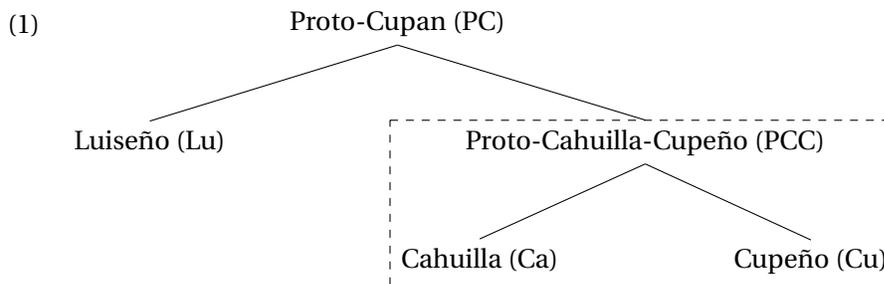


On the diachrony of word stress in the Cupan languages

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§1 Introduction

§1.1 The Cupan languages: Cupeño (cup), closely related Cahuilla (ch1), and more distantly related Luiseño (lui) form the Cupan subgroup of the Takic subfamily of Uto-Aztecan localized in southern California (cf. Bright and Hill 1967); group-internal tree in (1):



- Few remaining speakers of Cahuilla and Luiseño (Golla 2011), and none at all of Cupeño (Hill 2005).

§1.2 Stress in Cupan: Cupan languages show non-trivial differences in their word-prosodic systems (see esp. Hill and Hill 1968, Munro 1990), both in surface stress patterns and — to a greater extent — in the principles by which (primary) stress is assigned. This paper focuses on the divergence between Cupeño and Cahuilla.

- Cupeño and (Desert, Mountain) Cahuilla often show identical surface stress patterns in cognate items.
 - Many cognate CVCV roots show stem(/root)-initial stress in each language, e.g. (2a–b)
 - Both languages show evidence for prefixal/word-initial stress in some CV̄(C) noun roots, e.g. (2c).

(2)

	CUPEÑO	=	CAHUILLA	
a.	[súqa-t]	=	[súka-t]	‘deer-ABSL’
b.	[nə-ʂáʔi]	=	[ne-sáʔi]	‘my-guts’
c.	[tʃém-na]	=	[tʃém-naʔ]	‘our-father’

- But there are also numerous items in which Cupeño and Cahuilla show different stress patterns.
 - Cupeño has CVCV roots with 2σ stem stress against Cahuilla stem-initial stress, e.g. (3a).
 - Also prefixal/word-initial stress mismatches in both directions, e.g. (3b–c).

(3)

	CUPEÑO	≠	CAHUILLA	
a.	[kaxá-l]	≠	[qáxa-l]	‘quail-ABSL’
b.	[nə-ʔáʃ]	≠	[né-ʔaʃ]	‘my-pet’
c.	[né-tama]	≠	[ne-táma]	‘my-mouth’

- Comparison with Luiseño illustrates two important facts about PCC:
 - (i) Examples in (4a) show that PCC inherited contrastive vowel length (preserved in Luiseño), which was subsequently lost in both daughter languages.
 - (ii) Examples in (4b) with initial stress in PCC are an innovation against Proto-Cupan (PC), which had 2σ root stress (preserved in Luiseño).
- Stress was attracted to word-internal long vowels in PCC nouns, resulting in 2σ root stress, e.g. (5):

(5)	PCC		CUPEÑO	CAHUILLA		LUISEÑO
a.	*[qaxá:l]	>	[kaxá:l]	[qáxa-l]	‘quail-ABSL’	cf. [qaxá:l]
b.	*[qawí:-f]	>	[kawí:-f]	[qáwi:-f]	‘rock-ABSL’	[qawí:-tʃa]
c.	*[yamí:-f]	>	[yamí:-f]	[yámi:-ʎ]	‘forest-ABSL’	[yamí:-tʃa]

- Cupeño preserves the inherited pattern (matched in Luiseño), while Cahuilla has innovated stem-initial stress.

§2.2 “Regular” stress rules in PCC: PCC thus had the regular stress rules in (6) (cf. Munro 1990:224–6):

- (6) (i) If the second syllable of the stem is long, stress it.
 (ii) Otherwise stress the initial syllable of the stem.

- From an OTic perspective: WSP \gg ALIGN-L(PK, STEM)

§2.3 “Exceptional” PCC stress patterns: PCC stress was generally stem-bounded, but prefixal/word-initial stress could arise with Cupan “stressless” roots (Hill and Hill 1968; cf. Heath 1977, Mamet 2011) and more generally, with PCC *CV noun roots.

- Specifically, PCC stress was prefixal when such roots occurred in **absolute word-final position**.
 - Cupeño preserves prefixal stress when such roots are final, e.g. (7), but not non-final, e.g. (7f).
 - Cahuilla shows agreement in cognate monosyllabic noun roots, e.g. (7a–d).
 - But Cahuilla has innovated stem-initial stress in cognate disyllabic noun roots, e.g. (7e), and also prefixal stress in suffixed $C\check{V}$ roots, e.g. (7f).

(7)	PCC		CUPEÑO	CAHUILLA		
a.	*[tʃóm-naʔ]	>	[tʃóm-na]	[tʃém-naʔ]	‘our-father’	
b.	*[né-yəʔ]	>	[né-yə]	[né-yeʔ]	‘my-mother’	
c.	*[né-muʔ]	>	[nú-mu]	[né-muʔ]	‘my-nose’	
d.	*[né-kiʔ]	>	[né-ki]	[né-kiʔ]	‘my-house’	
e.	*[né-t(a)ma]	>	[né-tama]	[ne-táma]	‘my-mouth’	cf. Lu. [nó-tma]
f.	*[nə-kí-ŋaʔ]	>	[nə-kí-ŋa]	[né-ki-ŋaʔ]	‘in my house’	

- The (historical and synchronic) motivation for stress shift onto the prefix in Cupan “stressless” roots is a complex (and still unresolved) issue (see Mamet 2011 for recent extensive discussion). In *CV roots, it may be due to avoidance of a word-final degenerate head (trochaic) foot (cf. Yates 2016). In Luiseño, prefixal stress is dependent on syncope (cf. Lu. [pom-tamá:] ‘their-teeth’). Luiseño also has a long vowel in the cognate of (7f) — i.e. [no-kí:-ŋa] — which if present in PCC could explain why prefixal stress did not arise in this case.
- I assume that PCC had glottal stop insertion in (7a–d) as in Cahuilla (and Luiseño).
- Cupeño also has verbs with prefixal stress, which points to the same in Proto-Cupan, although the exact conditions are difficult to recover; prefixal stress has been eliminated in Cahuilla verbs except as an archaism in the verb *yax* ‘say’.

§2.4 Beyond PCC: Between PCC and its daughter languages contrastive vowel length was lost; historical long vowels were shortened (cf. Munro 1990:226).

- Interaction between stress assignment and vowel shortening in post-PCC schematized in (8):

(8)	‘day’	‘my mother’	‘wildcat’	‘quail’
UR	*/tami-t/	*/nə-yə/	*/tu:ku-t/	*/qaxa:l/
STRESS ASSIGNMENT:	támi-t	nó-yəʔ	tú:ku-t	qaxá:l
V:-SHORTENING:	–	–	túku-t	qaxá:l
SR	*[támi-t]	*[nó-yəʔ]	*[túku-t]	*[qaxá:l]

- Shortening did not affect root-initial or prefixal stresses, but rendered stress assignment to 2σ root long vowels opaque.

- ▶ Opacity triggered broader restructuring of inherited stress system in both Cupeño and Cahuilla.

§3 The development of Cahuilla stress

- How did Cahuilla respond to the loss of contrastive vowel quantity?

- (i) Maintains PCC stem-initial default stress assignment, with **regularization** of historical stem-internal stresses. (§3.1)
- (ii) Analogical **extends** prefixal/word-initial stress to all $C\check{V}C$ nouns. (§3.2)

§3.1 Diachronic regularization in Cahuilla: Cahuilla preserved the principle of PCC stress assignment whereby stress is assigned to the word’s **stem-initial** syllable.

- Polysyllabic words with inherited stem-initial stress exhibit no surface change, e.g. (9a–d).
- But words with historical stem-internal stress are **regularized** — they are now assigned stress by same default principle, resulting in historical “retraction” of stress to stem-initial syllable, e.g. (9e–f):

(9)	CAHUILLA			PCC
a.	/suqa-t/	→	[súqa-t] ‘deer-ABSL’	cf. *[sú:qa-t]
b.	/tuku-t/	→	[túku-t] ‘wildcat-ABSL’	*[tú:ku-t]
c.	/tami-t/	→	[támi-t] ‘day-ABSL’	*[támi-t]
d.	/ne-saʔi/	→	[ne-sáʔi] ‘my-guts’	*[nə-sá:ʔi]
e.	/qawi-tʃ/	→	[qáwi-f] ‘rock-ABSL’	*[qawí:-f]
f.	/qaxa-l/	→	[qáxa-l] ‘quail-ABSL’	*[qaxá:l]

} regularized

§3.2 Extending “exceptional” prefixal stress: Cahuilla also analogically extended prefixal stress from PCC *CV roots to all C \check{V} (C) noun roots.

- Inherited *CV roots — e.g. (10a–b) — undergo no change.
- Prefixal stress extended to inherited *CVC roots, e.g. (10c–d).

(10)	PCC		CAHUILLA		CUPEÑO
a.	*[tʃém-naʔ]	>	[tʃém-naʔ]	‘our-father’	cf. [tʃém-na]
b.	*[né-kiʔ]	>	[né-kiʔ]	‘my-house’	[né-ki]
c.	*[ne-ʔów]	>	[né-ʔew]	‘my-blood’	[nə-ʔów]
d.	*[nə-ʔáf]	>	[né-ʔaf]	‘my-pet’	[nə-ʔáf]

} “retraction”

- Two further changes induced by new (primarily) phonological generalization about prefixal stress:
 - Innovative prefixal stress pattern introduced into **suffixed** *CV roots too, e.g. (11a).
 - But disyllabic roots with inherited prefixal stress were brought under scope of regular stem-initial stress rule, e.g. (11b):

(11)	PCC		CAHUILLA		CUPEÑO
a.	*[nə-kí-ŋa]	>	[né-ki-ŋaʔ]	‘in my house’	[nə-kí-ŋa]
b.	*[né-t(a)ma]	>	[ne-táma]	‘my-mouth’	[né-tama]

§3.3 The diachrony of stress in Wanikik Cahuilla: Wanikik Cahuilla further generalized regular **word-initial** stress (vs. stem-initial in other dialects).

- Development of word-initial stress rule caused no further change in unprefixated items or in prefixed C \check{V} (C) roots — e.g. (12a–c) / (12d–e) — which would have provided the basis for the new generalization.
- But it drove “retraction” of stress in other prefixed stems, e.g. (12f–g):

(12)	WANIKIK CAHUILLA				CAHUILLA
a.	/tuku-t/	→	[túku-t]	‘wildcat-ABSL’	cf. [túku-t]
b.	/tami-t/	→	[támi-t]	‘day-ABSL’	[támi-t]
c.	/qawi-tʃ/	→	[qáwi-f]	‘rock-ABSL’	[qáwi-f]
d.	/tʃem-na/	→	[tʃém-naʔ]	‘our-father’	[tʃém-na]
e.	/ne-ʔew/	→	[né-ʔew]	‘my-blood’	[né-ʔew]
f.	/ne-saʔi/	→	[né-saʔi]	‘my-guts’	[ne-sáʔi]
g.	/ne-piwi/	→	[né-piwi]	‘my-great-grandfather’	[ne-píwi]

- This expansion of the stress domain from stem to word provides close parallel to what is hypothesized (in §4 below) between PCC and Cupeño.

§4 The development of stress in Cupeño

- How did Cupeño respond to the loss of contrastive vowel quantity?
 - Cupeño maintains nearly all PCC surface stress patterns.
 - But stress is assigned by innovative principles — certain morphemes are lexically specified as stress-attracting (ACCENTED, PREACCENTING) and stress is determined morphophonologically.

§4.1 Expanding the stress domain: In Cupeño the stress domain was expanded from stem to word (just as in Wanikik Cahuilla).

- PCC prefixal stresses are assigned in Cupeño by the new phonological preference for **word-initial** stress, e.g. (13a–c) (cf. Hill and Hill 1968; Alderete 2001):

(13)	CUPEÑO		PCC
a.	$/tʃəm - na/$	$\rightarrow [tʃóm-na]$	‘our-father’
			cf. $*[tʃóm-na]$
b.	$/nə - ki/$	$\rightarrow [nó-ki]$	‘my-house’
			$*[nó-kiʔ]$
c.	$/nə-tama/$	$\rightarrow [nó-tama]$	‘my-mouth’
			$*[nó-t(a)ma]$

- The lexical representation of the relevant morphemes remain unchanged (UNACCENTED).
 - One place where Cupeño has innovated at least with respect to Proto-Cupan (and likely also PCC) is in the corresponding plural forms of (13d) — compare Cu. $[póm-tama]$ ‘their mouths’ with Luiseño $[pom-tamá:]$.

§4.2 Lexicalization of stress: PCC word-internal stress patterns — no longer phonologically predictable — were maintained by lexicalization.

- Most morphemes bearing word-internal stress were reanalyzed as underlyingly stress-preferring (ACCENTED), e.g. (14a–d).
- Prefixed PCC $*CV$ roots retained stress on the root when followed by other suffixes (cf. §2.3).
 - These suffixes were reanalyzed in Cupeño as PREACCENTING (´-) — i.e., as preferring stress on the immediately preceding syllable, e.g. (14e).

(14)	CUPEÑO		PCC
a.	$/kawí - tʃ/$	$\rightarrow [kawí-ʃ]$	‘rock-ABSL’
			cf. $*[qawí:-ʃ]$
b.	$/kaxá - l/$	$\rightarrow [kaxá-l]$	‘quail-ABSL’
			$*[qaxá:-l]$
c.	$/nə - ʃáʔi/$	$\rightarrow [nə-ʃáʔi]$	‘my-guts’
			$*[nə-ʃá:ʔi]$
d.	$/nə - ʔów/$	$\rightarrow [nə-ʔów]$	‘my-blood’
			$*[nə-ʔów]$
e.	$/nə-ki-´\eta a/$	$\rightarrow [nə-kí-\eta a]$	‘in my house’
			$*[nə-kí-\eta a]$

§4.3 Leftmost wins: As a result of this reanalysis, Cupeño words may contain multiple lexically stress-attracting morphemes (ACCENTED, PREACCENTING).

- In such cases, the leftmost accented morpheme receives stress, e.g. (15) (see Yates 2017a,b).
- Synchronically, leftmost wins falls out from same phonological preference for left-edge word stress that drives default word-initial stress.

(15) Cu. $/nə-ʃáʔi-´\eta a/ \rightarrow [nə-ʃáʔi-\eta a]$ ‘in my guts’

- The diachronic analysis outlined here derives the **synchronic** Cupeño stress system in nouns. Not treated here are Cupeño accented suffixes, which occur only in the verbal system (e.g. PST.IPFV.SG $/-qá/$); these historically come from roots via grammaticalization (see Heath 1977). From an OTic perspective, default leftmost and leftmost wins emerge from ALIGN-L(PK, ω).

§5 Conclusions & discussions

§5.1 **PCC > Cupeño:** Proposed historical developments from PCC to synchronic Cupeño thus (cf. §4):

- After loss of contrastive vowel length, stress domain was expanded from stem to word.
 - Preference for stem-initial stress thus become a preference for **word-initial** stress.
- Cupan “stressless” roots and more broadly PCC *CV roots that showed stress shift to prefixes developed into Cupeño unaccented roots.
- Possessor(/agreement) prefixes remain unaccented, but receive default initial stress in combination with Cupeño unaccented roots.
- Suffixes that immediately followed these proto-unaccented roots — and thus blocked PCC stress shift to prefixes — were reanalyzed as preaccenting.
- Root/word-internal stresses were lexicalized as features of the historically stressed morphemes.
- The same preference for word-initial stress that assigns default stress also accounts for leftmost wins in accent resolution.

§5.2 **PCC > Cahuilla:** Proposed historical developments from PCC to synchronic Cahuilla thus (cf. §3):

- After the loss of contrastive vowel length, the stem-initial stress rule was maintained.
 - “Irregular” historical stem-internal stresses were regularized, replaced by default stem-initial stress.
- Prefixal/word-initial stress was extended from prefixed word-final *CV roots to all CVC noun roots.
- Wanikik Cahuilla shows further innovation of preference for word-initial — rather than stem-initial — stress (as in Cupeño).

§5.3 **Chronology of vowel shortening?** Contrastive vowel length was lost between PCC and Cupeño and Cahuilla — but **when?**

- Given that both languages show loss of contrastive vowel quantity, it is possible that this loss was an innovation of “late” PCC (thus Munro 1990:226).
- However, under the analysis proposed in §§3–4, shortening of * \bar{V} occurred independently in prehistory of Cahuilla and Cupeño (cf. Hill and Hill 1968:237–9).
- Viewing the loss of vowel quantity as separate innovations may better account for how each language preserves different features of the inherited PCC system intact:
 - Cupeño better preserves PCC **surface stress patterns**, developing new stress rules to account for it.
 - Cahuilla better preserves the **rules** of PCC stress assignment, maintaining the stem-initial stress preference.
- If Cahuilla passed through a Cupeño-like stage with word-initial stress preference, it is more difficult (though not impossible) to explain why stem-initial stress would **reemerge** historically, especially if stem-bounded stress is diachronically dispreferred (cf. §5.4). Moreover, the innovations may not have been wholly independent, since vowel shortening could have spread as an areal feature.

§5.4 Domain broadening as optimization? Both Wanikik Cahuilla and Cupeño may show expansion of the (regular) stress domain from stem to word.

- Are word-bounded stress systems preferred (e.g., in terms of learnability) to stem-bounded stress?
 - Since (regularly) stem-bounded stem stress is standardly reconstructed for PUA (Munro 1977; cf. Hill 2011), further work on the UA languages in particular may shed light on this hypothesis.

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