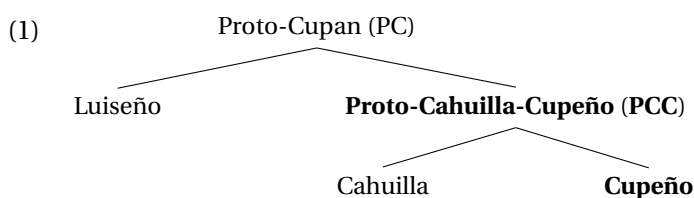


On the evolution of lexical accent in Cupeño

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§1 Introduction

§1.1 Prehistory & ecology of Cupeño: The Cupan languages — Cupeño (Cu), closely related Cahuilla (Ca), and more distantly Luiseño (Ls) — form (1) a subgroup of the Takic subfamily of Uto-Aztecan localized in southern California (cf. Bright and Hill 1967). Very few remaining speakers of Cahuilla and Luiseño (Golla 2011), and none at all of Cupeño (Hill 2005).



§1.2 Lexical accent in Cupeño: Generally held that Cupeño has a LEXICAL ACCENT system (see esp. Alderete 2001a,b; cf. Kiparsky 2010) — in such systems:

- Morphemes may bear lexical specification as preferred hosts of prosodic prominence (ACCENT).
- A word's primary prosodic prominence (STRESS) is determined by an interaction between the lexically-specified accentual properties of its constituent morphemes and language-specific phonological principles (i.e. rules/constraints).

§1.3 A prosodic innovation: Lexical accent is historically innovative in Cupeño:

- Proto-Uto-Aztecan (PUA) had a fixed (i.e. phonologically predictable) stress system (Hill 2011; cf. Munro 1977)
- This fixed stress system was inherited into Proto-Cupan, and (at least partially) continued in PCC (Munro 1990; cf. Hill and Hill 1968).

§1.4 The emergence of lexical accent? Incompletely understood how lexical accent developed diachronically in Cupeño — in particular, the crucial synchronic contrast between:

- Accented roots, which always bear word stress — e.g. (2).
- Unaccented — or traditionally, STRESSLESS roots — like (3) whose derivatives are stressed on (3a) an accented affix or else on (3b) the leftmost syllable by default (Alderete 2001b; cf. Mamet 2011):

- (2) Cu. /ʔáyu - qá/ → ʔáyu-qa 'wants' (want-PRS)
- (3) a. Cu. /max - qá/ → max-qáʔ '(are) giving' (give-PRS)
- b. Cu. /max - əm/ → máx-əmə 'Give!' (give-IMP.PL)

§1.5 The evolution of Cupeño prosody: Roadmap for today:

- (i) Show that lexical accent developed in response to the loss of contrastive vowel length in PCC — synchronically opaque stress patterns were preserved by lexicalization (cf. Munro 1990). (§2)
- (ii) Motivate the Cupeño split between accented and stressless nominal roots, deriving the unaccented type via surface reanalysis of inalienable possession constructions (cf. Mamet 2011). (§3)
- (iii) Offer a provisional scenario for the historical divergence of the prosodic systems that developed in Cupeño and Cahuilla. (§4)

§2 Genesis of lexical accent in (Pre-)Cupeño

§2.1 (Remote) prehistory of Cupeño stress: Proto-Uto-Aztecan (PUA) had a left edge-oriented, weight-sensitive fixed stress system (Hill 2011; cf. Munro 1977) — primary stress consistently fell on the 1st or 2nd syllable, preferring heavy syllables; rhythmic alternating secondary stress:

- Munro's (1977) survey of UA stress systems leads her to reconstruct iambic “second (vocalic) mora” primary stress (e.g. **#CVCV́*) for PUA. More recently, Hill (2011) has argued for a trochaic pattern (e.g. **#CV́.CV*), building on Langacker (1977:22–3) and Manaster Ramer (1993a,b), whose proposal is supported by Numic evidence (cf. Miller et al 2005:431–8).

§2.2 The synchronic situation: Inherited PUA prosodic patterns clearly reflected in the Cupan languages, but synchronic principles of stress assignment differ in each:

- **Luisseño:** A long vowel in the 1st or 2nd syllable is always stressed — otherwise lexically determined, although generally 1st syllable stress in verbs and 2nd in nouns.
- **Cahuilla:** Fixed root-initial stress in the Desert/Mountain dialects, and word-initial in the Wáníkk dialect; trochaic, weight-sensitive secondary stress.
- **Cupeño:** Stress lexically determined, with word-initial default; strong tendency for 1st or 2nd syllable stress.

§2.3 (Shallow) prehistory of Cupeño stress? Per Munro (1990), PCC innovated the (ordered) primary stress rules in (4) — thus (e.g.) (5):

(4) PROTO-CAHUILLA-CUPEÑO PRIMARY STRESS ASSIGNMENT:

- a. Stress a long vowel in either the first or second syllable of the root.
- b. Stress the first syllable of the root.

- (5) a. PCC **šú:ka-t* ‘deer’ > Cu. *súka-t*, Ca. *súka-t* (cf. Lu. *šú:ka-t*)
 b. PCC **yamí:-č(a)* ‘forest’ > Cu. *yəmí-š* (cf. Lu. *yamí-ča*; Ca. *yámi-ilʸ* ‘leaves’)
 c. PCC **ʔáyə-t(a)* ‘thief’ > Cu. *ʔáyə-t*, Ca. *ʔéye-t* (cf. Lu. *ʔuyót* < PC **ʔəyót*)

- Munro (1990:266) suggests that initial stress emerged via analogic extension of the stress pattern observed in Luisseño verbs (itself a PC development). The strongest evidence for this PCC innovation comes from PC **CVCV́* nominal roots like (5c) (viz. Munro's “type III”), whose absolutive forms bear stress on the 2nd syllable of the root in Luisseño, but show (prosodically regularized) initial stress in Cupeño and Cahuilla.

§2.4 Analyzing PCC primary stress: Reconstruct a Cahuilla-like system with primary stress aligned to the left edge of the root (ALIGN(PK; RT, L)), **but** long vowels are always stressed (WSP) — crucial constraints/ranking in (6), and applied to (5) in (7):

- (6) a. ALIGN(PK; RT, L): Align the stress peak (viz. primary stress) with the left-edge of the root.
- b. WEIGHT-TO-STRESS PRINCIPLE (WSP): Long vowels must be stressed.
- c. WSP >> ALIGN(PK; RT, L)

(7) a.

	*/ʃu:ka-t/	WSP	ALIGN(PK; RT, L)
a.	☞ *ʃú:ka-t		
b.	*ʃu:ká-t	*!	*

b.

	*/yami:-č/	WSP	ALIGN(PK; RT, L)
a.	☞ *yamí:-š		*
b.	*yámi:-š	*!	

c.

	*/ʔəyə-t/	WSP	ALIGN(PK; RT, L)
a.	*ʔəyá-t		*!
b.	☞ *ʔəyə-t		

- Some of the most problematic aspects of assessing prosodic structure in the Cupan languages are related to the status of weight-bearing status of consonants at the right edge of prosodic constituents (syllable, word). Cupeño is argued to have word final consonant extrametricality by Crowhurst (1994) following McCarthy and Prince (1990), although the evidence for this slim (cf. McCarthy 1997). In Cahuilla, in contrast, all coda consonants are non-moraic with the exception of glottal stops (Seiler 1977:26–9; cf. Hayes 1995:132–40). What precisely should be reconstructed for PCC on this basis is unclear; this formulation of (6b) is intended to avoid the problem (temporarily; cf. §3.5).
- It is also interesting that original *CVČV-(Ca) nouns receive initial stress in (early) PCC, which suggests that prosodic regularization is preferred to lexicalization at this stage, but when vowel length is later lost in (late) PCC, the reverse seems to be the case (cf. §2.6).

§2.5 *V-loss and its consequences: PCC subsequently lost contrastive vowel length (*V:), thereby rendering stress assignment to word-internal long vowels opaque, e.g. (8):

		‘forest’	‘mountain/rock’	‘quail’	
	UR	*/yami:-š/	*/qawi:-š/	*/qaxa:-l/	
(8)	STRESS ASSIGNMENT:	yamí:-š	qawí:-š	qaxá:-l	} COUNTERBLEEDING
	V:-SHORTENING:	yamí-š	qawí-š	qaxá-l	
	SR	*[yamí-š]	*[qawí-š]	*[qaxá-l]	

- Predictably, parallel OT fails:

- (9) a. PCC *yamí:-č(a) > *yamí-š (x^yámí-š) > Cu. yamí-š ‘forest’
- b.

	*/yami:-č/	*V:	WSP	ALIGN(PK; RT, L)	ID-[LONG]
a.	*yamí:-č	*!			
b.	☹ *yamí-č			*!	*
c.	☹ *yámi-č				*

- For compelling arguments that failure in this case is a good thing, see Bowers (2012) and Hayes (2015).

§2.6 Opaque alternations: Opacity due to *V:-loss instead triggered RESTRUCTURING (e.g. Kiparsky 1982)— the old system failed to be acquired, learners instead posited innovative underlying representations that are directly continued in Cupeño:

- Word-internal stresses were reanalyzed as a feature of roots, with emergent high-ranking accentual faithfulness (MAX-ACCENT), e.g. (10):

- (10) a. MAX-ACCENT: A lexical accent in the input must correspond with a stressed syllable in the output
 b. PCC *qawí:-č(a) ‘mountain/rock’ > *qawí-š ← */qawí-š/ (post-restructuring)

c.

	*/qawí-š/	WSP	MAX-ACCENT	ALIGN(PK; RT, L)
a.	*qáwí-š		*!	
b.	☞ *qawí-š			*

- This type showed (virtually) no surface stress alternations in late PCC because they were not affected by “stress shift” (§3.4) even when they occurred in the possessed state; see further §3.9 below.

§2.7 PCC in typological perspective: PCC would thus follow an established pathway to lexical accent (cf. Kabak and Revithiadou 2009); a close parallel is the development of modern Italian from Romance:

- (11) a. CLASSICAL LATIN STRESS RULE:
 Stress the penult if heavy (óσ#), otherwise the antepenult (óσσ#) (cf. Allen 1973:155–70)

b. Lat. /virturtem/ → *virtūtem* [virtú:tem] ‘manliness; virtue’

- After the loss of contrastive vowel quantity and (later) syncope, the position of word stress remains on the same historical syllable, but is longer predictable — it must bear a lexical accent:

- (12) Ital. /virtú/ → *virtù* [virtú] ‘value’ cf. OItal. *virtude* [virtúde]

- For a metrical analysis of Classical Latin, see Mester (1994). Default stress in Italian is generally penultimate; for a thorough discussion of stress and lexical accent in Italian, see Krämer (2009).

§3 Stress(less) roots & historical reanalysis

§3.1 From PCC to Cupeño: Stress much more lexicalized in Cupeño — how did this system emerge?

§3.2 Toward a solution: Development of complex lexical accent system in Cupeño crucially connected to stressless roots, in which surface stress contrasts can be observed; a complete list of nominal accented roots given in (13) (Hill 2005:473):

- (13)
- | | | |
|------------------------------|--------------------------------|------------------------------|
| -ala ‘louse’ | -na ‘father’ | -šev ‘acorn hulls’ |
| -hil ^y a ‘cheek’ | -nang ‘tongue’ | -šu ‘mother’s mother’ |
| -hin ^y a ‘saliva’ | -neš ‘mother’s younger sister’ | -šula ‘fingernail; claw’ |
| -ki ‘house’ | -nyenga ‘saliva’ | -tama ‘mouth; teeth’ |
| ku ‘fire’ | -paha ‘father’s sister’ | -te ‘sinew’ |
| -kwa ‘mother’s father’ | -pela ‘leaf’ | -tewi ‘chest’ |
| -kwala ‘armpit; side’ | -pi ‘breast’ | -waqa ‘shoe’ |
| -kwaš ‘tail’ | -puš ‘eyes; face’ | -wiki ‘flight feather; wing’ |
| -ma ‘hand; arm’ | -qa ‘paternal grandrelative’ | -ye ‘mother’ |
| -meš ‘father’s brother’ | -qena ‘gall’ | -yu ‘head; hair’ |
| -mex ‘navel’ | -qew ‘forehead’ | |
| -mu ‘nose’ | -qilya ‘nape of the neck’ | |
| -muš ‘nipple’ | | |
| -muv ‘snot’ | | |

§3.3 Toward a historical reanalysis: Two general (synchronic and historical) properties are common to Cupeño stressless roots:

§3.3.1 Inalienably possessed nouns: Many of the roots in (13) are inalienably possessed nouns, occurring only in the possessed state together with (monosyllabic) possessor prefixes.

§3.3.2 Root structure: Many of the roots in (13) continue PUA monosyllabic **CV(ː)* roots or disyllabic roots with second syllable stress (**CVCV́(ː)*); secure examples of each type in (14) and (15) respectively:

- | | | |
|------|------------------------|--------------------------------------|
| | Cu. -na ‘father’ | cf. Lu. -náʔ, Ca. ˈ-na |
| (14) | Cu. -ki ‘house’ | cf. Lu. kíː-ča / -kíʔ, Ca. ˈ-ki |
| | Cu. -ma ‘hand’ | cf. Lu. má-t / -máː, Ca. má-l / ˈ-ma |
| (15) | Cu. -tama ‘tooth’ | cf. Lu. tamá-t |
| | Cu. -ṣula ‘claw; nail’ | cf. Lu. sulá-t |

§3.4 “Stress shift”: Per Mamet (2011), both types undergo regular “stress shift” in combination with possessor prefixes; primary stress fell not on the root, but instead on the possessor prefix, e.g. (16):

- (16) a. Late PCC **/pə-maː/* → **pə́-ma* ‘his hand’ (˘pə-má)
 b. Late PCC **/nə-ta-ma/* → **nə́-ta-mà* ‘my tooth’ (˘nə-ta-má)

§3.5 Explaining “stress shift”: According to Mamet (2011), “stress shift” is driven by a ban on word-final degenerate feet as bearers of primary stress (cf. van der Hulst 1999), which would suggest a high-ranking constraint such as (17) (cf. Hyde 2002, 2007):

(17) NONFIN- (x_ω, μ, ω) : No prosodic word level gridmark occurs on the final mora of a prosodic word.

- This constraint would affect *all* stressed short vowels in word-final position, forcing stress shift.

• Implementing this proposal encounters a number of difficulties, formal and otherwise:

- (i) (17) adapts Hyde (2007), whose typologically-driven approach requires only NONFIN- (x_F, μ, ω) , which rules out a final foot-level (and so by implication, word level) gridmark; but this stronger ban is incompatible with Mamet’s suggestion that the final foot syllable bears secondary stress.
- (ii) The assumption that the final syllable bears secondary stress in turn makes it easier to account for the fact that stress in prefixed **CVCV* roots surfaces on the prefix (potentially via **CLASH*) even though a single syllable shift to the first syllable of the root satisfies NONFIN and is optimal under ALIGN(PK; RT, L). Another issue is that it (arguably) conflicts with evidence from Cahuilla, which does not allow weak degenerate feet (Hayes 1995:137; but cf. Seiler 1977:26–9). For further on Cahuilla stress assignment, see Levin (1988) and Crowhurst and Hewitt (1995).
- (iii) This analysis would overgenerate stress shift in PCC *#CVCV́-C* absolutes if final consonant extrametricality were assumed for this stage (cf. §2.4 above). However, I take Cupeño glottal stop epenthesis in *V́*-final roots and non-epenthesis in their absolutes as evidence that extrametricality does not obtain in Cupeño, and tentatively reconstruct this for PCC. Mamet avoids these issues by situating “stress shift” in the distant prehistory of Cupeño, but this seems unlikely to me. A better understanding of the weight-bearing status of domain-final segments in PUA would bear on these questions.

§3.6 Motivating “stress shift”: Strong evidence for the constraint in (17) comes from Cupeño glottal stop epenthesis — within Cupeño, a (18) word-final stressed short vowel requires an epenthetic glottal stop, but when (19a) the vowel is long or (19b) followed by a consonant does not (Hill 2005:50–1):

- (18) Cu. /pá - ø/ → páʔ ‘will drink’ (drink-FUT)
 Cu. /hiqsá - ø/ → hiqsáʔ ‘will sigh’ (sigh-FUT)
- (19) a. Cu. /xée - ø/ → xée ‘will blow’ (blow-FUT) (˘xéeʔ)
 b. Cu. /pá - l/ → pál ‘water’ (water-ABS) (˘pá-lʔ)

- And it gains further support from Cahuilla, where stress is rigidly root-initial, incl. with (20b) $CV:(C)$ roots; yet (20a) light monosyllabic roots actually show *synchronic* “stress shift” to possessor prefixes:

- (20) a. Ca. čém-na ‘our father’ : –na ‘father’
 b. Ca. ne-yú:l ‘my younger brother’ : –yú:l ‘younger brother’

§3.7 “Stress shift” & inalienable possession: Due to “stress shift,” inalienably possessed nouns built to PPC $*CV:(:)$ and $*CVCV:(:)$ roots — which occur almost exclusively in the possessed state — show (nearly) *fixed prefixal stress*, e.g. (21):

- (21) a. Late PCC $*/pəm - na/ \rightarrow pém-nà$ ‘their father’ (cf. Cu. pém-na)
 b. Late PCC $*/nə - şulá/ \rightarrow nḗ-şulà$ ‘my claw/nail’ (cf. Cu. nḗ-şula)

- The roots in (21) are cognate with Cupeño unaccented roots (cf. Mamet 2011) — and these surface forms are directly continued in Cupeño (modulo sound change).

⇒ A surface reanalysis? (cf. §2.6)

- The only exception to fixed root stress for roots like (21) is in combination with the ancestors of the Cupeño PREACCENTING suffixes, which like the alienably possessed noun suffix blocked “stress shift.” The surface stress patterns in this type were preserved in Cupeño by reanalyzing these suffixes as PREACCENTING, i.e. placing a lexical accent on the last syllable of the immediately preceding morpheme (cf. Alderete 2001b) — e.g. Late PCC $*/nə - ma: - ŋa/ \rightarrow nḗ-má-ŋa$ ‘in my hand’ > Cu. nḗ-má-ŋa.

§3.8 An empirical prediction: Hypothesis that Cupeño stressless roots arose via surface reanalysis of inalienably possessed nouns like (21) is strongly supported by the development of PCC roots of shape $*CV:(CV)$ (> late PCC $*CVC(V)$).

- “Stress shift” did not target these roots, which bore consistent root-initial stress by virtue of their initial long vowel.
- The “surface reanalysis” hypothesis thus predicts that $*CV:(CV)$ nominal roots should *never* yield Cupeño stressless roots.
 - This prediction appears to hold in virtually every case, even for Cupeño inalienably nouns occurring only in the possessed state, e.g. (22):

- (22) Cu. –şá?i ‘guts’ cf. Lu. şá:ʔi-š / –şí:
 Cu. –kúng ‘husband’ cf. Lu. –kú:ng

- The (very) few exceptions are discussed by Mamet (2011:260–1).

§3.9 A problematic reanalysis: However, the complex surface stress distribution of inalienably possessed roots does not easily submit to reanalysis:

- Recall “ordinary” (viz. alienable) $*CVCV:$ noun roots, which underwent lexicalization of stress in late PCC after the loss of vowel quantity (cf. §2.6).

- In this type, surface stress was fixed in both (frequent) (23a) absolutes, as well as in (likely less common) (23b) possessed forms due to the alienably possessed noun suffix $*/-ki/$ inherited from Proto-Cupan (Hill 2005:258–9; cf. Mamet 2011):

- (23) a. Late PCC $*/yami:-č/ \rightarrow *yamí-č$ ‘rock’_(ROCK-ABS)
 b. Late PCC $*/nə-qawi:-ki/ \rightarrow *nḗ-qawí-ki$ ‘her rock’_(3S-ROCK-PSD)

⇒ Lexicalization in the case of (23) is straightforward — root-final stress is preferred to all alternatives, and so the root is treated as accented (viz. stress-preferring) on the final syllable:

- Inalienably possessed nouns are superficially similar — stress occurs overwhelmingly on the prefix, not on the root in, i.e. (24):

(24) a. Late PCC */pəm - na/ → *póm-nà ‘their father’ (= 21)
 b. Late PCC */nə - şulá/ → *nó-şulà ‘my claw/nail’

- But stress cannot be analyzed as a stress-preferring feature of the prefix, since prefixal stress does not surface in (e.g.) inalienable possessed nouns built to *CV:CV roots, e.g. (25):

(25) Late PCC */nə - kuɲ/ → *nə-kúɲ ‘my husband’ (cf. Cu. nə-kúɲ)

- After the loss of vowel length, root-initial stress like (25) can be reassigned to the default phonological principle (ALIGN(PK; RT, L) — but **only** under the condition that prefixes are **not** accented.

⇒ Reanalysis cannot involve simple lexicalization, but instead requires a more radical set of morphological and/or phonological innovations.

§4 On the evolution of Cupeño and Cahuilla prosody

§4.1 Prosodic divergence: Cupeño and Cahuilla reflect different responses to the inconsistent and complicated surface distribution in late PCC.

§4.2 Prosodic regularization: Cahuilla system undergoes significant prosodic regularization — the PCC default (and majority) root-initial pattern is generalized, with ALIGN(PK; RT, L) promoted to the top of the grammar

- Root-internal stresses were treated as non-salient by learners, but prefixal stresses were not — Cahuilla retains “stress shift” in with monosyllabic roots (cf. §3.6), and even extends this pattern to previously root-stressed monosyllabic forms, e.g. (26):

(26) Ca /ne - kuɲ/ → né - kuɲ cf. (25)

§4.3 A new default: In view of robust alternations at left-word edge like (24), the old default phonological principle becomes obscured in Cupeño — it innovates a new *word*-initial default stress pattern (attested!), with possessor prefixes incorporated into the stress domain (cf. Wánikik Cahuilla).

- As a direct consequence, root-initial stresses previously assigned by default were lexicalized as a feature of these roots; thus disyllabic roots could be specified for stress on either σ (also attested!).
- PCC “stress shifting” roots with consistent prefixal stress lacked this apparent stress-preferring property, and were treated as unaccented/stressless.
- Under the new system, prefixal stress in combination with “stress shifting” roots emerges by default, i.e. in the absence of a lexically accented root that attracts stress.

- This analysis, if correct, provides diachronic evidence that the possessor prefixes are in fact unaccented synchronically within Cupeño (contra Alderete 2001b:472). His arguments for accented prefixes depend on the fact that they receive stress even when preceded by object markers; but Hill (2005:111–14) has shown that these elements are clitics, which thus (arguably) fall outside the domain of word stress assignment in Cupeño.

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