On reduplication and stress in Cupeño

Anthony D. Yates
University of California, Los Angeles
adyates@ucla.edu

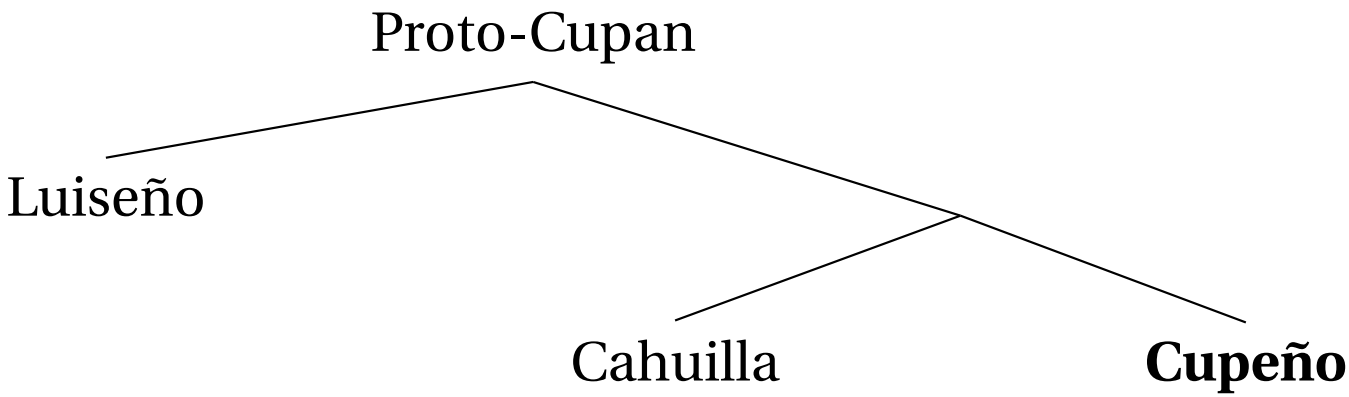
BLS 2017
Berkeley, CA
February 4, 2017

Slides available at:
http:/www.adyates.com/research

UCLA

Language background

- Cupeño, together with closely related Cahuilla and more distantly Luiseño form the Cupan subgroup of the Takic subfamily of Uto-Aztecan.



  - Cupan 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; all data examined here from Hill (2005).

UCLA

Reduplication in Cupeño

- Cupeño partial copy reduplication encodes a range of grammatical functions, including:
  - Aspectual modification in verbs
  - Pluralization in nouns and adjectives.

(1)

píŋin	'knock'	:	pípiŋin	'knock several times'
páβəl	'deer priest'	:	pápaβəl-im	'deer priests-PL'
páŋiʃ	'new.SG'	:	pápaŋiʃ	'new.PL'

Formal aspects of Cupeño reduplication I

- Two formal features of Cupeño partial reduplication to account for:

  (i) Variation in the amount of segmental material distinguishing a reduplicated form from its base.

  (ii) Exceptional pattern of consistent word-initial stress (marked with ´) in reduplicated forms.

Formal aspects of Cupeño reduplication II

- Majority of reduplicated forms distinguished from their base by additional *CV* as in (2):

(2) **CV-copy reduplication:**

hɛ́lʔiʃ	'wide.SG'	:	hɛ́hɛlʔiʃ	'wide.PL'
páŋiʃ	'new.SG'	:	pápaŋiʃ	'new.PL'

- But some reduplicated forms show only an additional *C* w.r.t. to their base as in (3):

(3) **C-copy reduplication:**

a. míxəl 'custom' : mímxəl 'customs'

b. ʔawə́lβə 'grown-up.SG' : ʔáʔwəlβə 'grown-up.PL'

UCLA

Previous analyses

- Two analyses of Cupeño partial reduplication have been proposed:
  - Hill (2005): prefixed *CV* reduplicant +/– stem vowel syncope.
  - Haynes (2007): infixed *C* reduplicant +/– *V* copy epenthesis.

(2) **CV-copy reduplication:**

hɛ́lʔiʃ	'wide.SG'	:	hɛ́hɛlʔiʃ	'wide.PL'
páŋiʃ	'new.SG'	:	pápaŋiʃ	'new.PL'

(3) **C-copy reduplication:**

a.	míxəl	'custom'	:	mímxəl	'customs'
b.	ʔawélβə	'grown-up.SG'	:	ʔáʔwəlβə	'grown-up.PL'

Previous analyses

- Two analyses of Cupeño partial reduplication have been proposed:
  - Hill (2005): prefixed *CV* reduplicant +/– root vowel syncope.
  - Haynes (2007): infixed *C* reduplicant +/– *V* copy epenthesis.

(2) **CV-copy reduplication:**

hɛ́lʔiʃ	'wide.SG'	:	hɛ́hɛlʔiʃ	'wide.PL'
páŋiʃ	'new.SG'	:	pápaŋiʃ	'new.PL'

(3) **C-copy reduplication:**

a.	míxəl	'custom'	:	mímxəl	'customs'
b.	ʔawélβə	'grown-up.SG'	:	ʔáʔwəlβə	'grown-up.PL'

Previous analyses

- Two analyses of Cupeño partial reduplication have been proposed:
  - Hill (2005): prefixed *CV* reduplicant +/– root vowel syncope.
  - Haynes (2007): infixed *C* reduplicant +/– *V* copy epenthesis.

(2) **CV-copy reduplication:**

hɛ́lʔiʃ	'wide.SG'	:	hɛ́hɛlʔiʃ	'wide.PL'
páŋiʃ	'new.SG'	:	pápaŋiʃ	'new.PL'

(3) **C-copy reduplication:**

a.	míxəl	'custom'	:	mímxəl	'customs'
b.	ʔawélβə	'grown-up.SG'	:	ʔáʔwəlβə	'grown-up.PL'

- Neither fully accounts for size variation in reduplication (or initial stress).

UCLA

Goals

- Develop an optimality-theoretic, atemplatic infixing analysis of variable copying in Cupeño reduplication — core features:

Goals

- Develop an optimality-theoretic, atemplatic infixing analysis of variable copying in Cupeño reduplication — core features:

  (i) Reduplicative morpheme is infixed after initial *CV* of the stem + copies inward from its left-edge

Goals

- Develop an optimality-theoretic, atemplatic infixing analysis of variable copying in Cupeño reduplication — core features:
  - (i) Reduplicative morpheme is infixed after initial *CV* of the stem + copies inward from its left-edge
  - (ii) Minimal (*C*) copying is preferred.

Goals

- Develop an optimality-theoretic, atemplatic infixing analysis of variable copying in Cupeño reduplication — core features:

  (i) Reduplicative morpheme is infixed after initial *CV* of the stem + copies inward from its left-edge

  (ii) Minimal (*C*) copying is preferred.

  (iii) Additional (*CV*) copying driven by phonotactic constraints:

  *COMPLEX OCP SYLLABLECONTACT

Goals

- Develop an optimality-theoretic, atemplatic infixing analysis of variable copying in Cupeño reduplication — core features:
  - (i) Reduplicative morpheme is infixed after initial *CV* of the stem + copies inward from its left-edge
  - (ii) Minimal (*C*) copying is preferred.
  - (iii) Additional (*CV*) copying driven by phonotactic constraints:

    *COMPLEX OCP SYLLABLECONTACT
- Compare two alternative analyses: prefixed-CV, INFIXED-C

Goals

- Develop an optimality-theoretic, atemplatic infixing analysis of variable copying in Cupeño reduplication — core features:
  - (i) Reduplicative morpheme is infixed after initial *CV* of the stem + copies inward from its left-edge
  - (ii) Minimal (*C*) copying is preferred.
  - (iii) Additional (*CV*) copying driven by phonotactic constraints:

    *COMPLEX OCP SYLLABLECONTACT
- Compare two alternative analyses: prefixed-CV, INFIXED-C
- Provide a principled explanation for word-initial stress in reduplication.

UCLA

Conditions on CV-copy reduplication I

- CV-copy reduplication — the more common pattern — is exceptionless when C-copy reduplication would violate *COMPLEX:

	túlnikiʃ	'black.SG'	:	tútulnikiʃ	'black.PL'	(*tln)
	ʔáyʔaniʃ	'big.SG'	:	ʔáʔayʔant͡ʃ-am	'big.PL'	(*ʔyʔ)
	súpləwi-t	'one'	:	súsupləwət	'each one'	(*spl)
(4)	kíʃ	'house'	:	kíkiʃ	'houses'	(*kʃ#)
	(pə́)-yax	'(he) says	:	yáyax	'be saying'	(*yx#)
	(pú-)kuʂ	'(he) takes'	:	kúkuʂ	'take repeatedly'	(*kʂ#)
	(pə-)máx	'(he) grinds'	:	mámax	'be grinding'	(*mx#)

(5) *COMPLEX: Complex syllable margins (onset, coda) are not permitted.

UCLA

Conditions on CV-copy reduplication II

- CV-copy reduplication is found in a few items when C-copy reduplication would violate the OCP (e.g. McCarthy 1986; Yip 1988):

(6)

tát͡ʃin	'grab'	:	tátətə͡ʃin	'be grabbing'	(^{x}t.t͡ʃ)
páβəl	'deer priest'	:	pápaβəl-im	'deer priests'	(^{x}p.β)

(7) $\text{OCP}_{\text{PLACE/SON}}$: Adjacent segments with the same value for [place] and [sonorant] are not permitted.

Conditions on CV-copy reduplication III

- CV-copy reduplication also occurs when C-copy reduplication would violate SYLLABLECONTACT (e.g. Vennemann 1988; Gouskova 2004).
  - Specifically, when C-copy would yield a steep sonority rise (obstruent-sonorant) across a syllable boundary.

(8)

páŋiʃ	'new.SG'	:	pápaŋiʃ	'new.PL'	(^{x}p.ŋ)
ʔa-kúʎi	'ADJ-little.SG'	:	ʔa-kúkuʎi(-m)	'ADJ-little.PL'	(^{x}k.ʎ)
píŋin	'knock'	:	pípiŋin	'knock several times'	(^{x}p.ŋ)
t͡ʃáŋin	'kick'	:	t͡ʃát͡ʃəŋin	'be kicking'	(^{x}ʃ.ŋ)

(9) (SYLLABLE)CONTACT: A [+son] coda segment followed by [–son] onset segment is not permitted.

Conditions on C-copy reduplication I

- C-copy reduplication emerges whenever it would violate none of the above phonotactic constraints.
  - Bases with 1σ stress like (10) show C-copy reduplication:

(10)

nə́t	'chief'	:	nə́ntam	'chiefs'
nít	'pregnant woman'	:	níntam	'pregnant women'
(pə́-)max	'(he) gives'	:	mámxat	'several things given'
ŋətin	'cut with axe'	:	ŋə́ŋti	'split wood'
míxəl	'custom'	:	mímxəl	'customs'
wík	'step on'	:	wíwkan	'step on several times'
təpil	'weave'	:	tə́tpil	'be weaving'

- Clusters resulting from reduplication all have falling or equal sonority across syllable boundaries.

UCLA

Conditions on C-copy reduplication I

- C-copy reduplication emerges whenever it would violate none of the above phonotactic constraints.
  - Bases with 2σ stress like (11) consistently show C-copy reduplication:

(11)

waβáʂiʃ	'long.SG'	:	wáwβaʂitʃ-am	'long.PL'
kaβáʔmal	'olla'	:	kákβaʔmal-im	'ollas'
naxán-itʃ	'man'	:	nánxa$\widehat{\text{tʃ}}$-im	'men'
naxán-tʃuʔ-βel	'old man'	:	nánxa-βəl-im	'old men'
nawí-kat	'woman'	:	nánwit-am	'women'

- Clusters resulting from reduplication all have falling or equal sonority across syllable boundaries.

Conditions on C-copy reduplication II

- With respect to sonority sequencing, glottal stops pattern with sonorants.
  - Thus glottal stop-sonorant sequences are permissible across syllable boundaries, e.g. (12):

(12)

ʔə́yət	'thief'	:	ʔəʔyət-im	'thieves'
ʔúnin	'show'	:	ʔúʔnin	'show repeatedly; teach'
ʔawə́lvə	'grown-up.SG'	:	ʔáʔwəlvə	'grown-up.PL'
ʔələ́lʔiʃ	'bad, ugly.SG'	:	ʔəʔləlʔish	bad, ugly.PL'
ʔulá:n	'sew'	:	ʔúʔla	'sew'

- For the sonorant behavior of glottal stops cross-linguistically, see (e.g.) Parker (2002:64–8) with refs.

UCLA

Local summary: Conditions on reduplication

- C-copy reduplication is the "default" strategy, emerging whenever phonotactically licit.
- CV-copy reduplication occurs when C-copy reduplication would violate any of the following typologically grounded phonotactic constraints:

  *COMPLEX OCP CONTACT

Local summary: Conditions on reduplication

- C-copy reduplication is the "default" strategy, emerging whenever phonotactically licit.
- CV-copy reduplication occurs when C-copy reduplication would violate any of the following typologically grounded phonotactic constraints:

  *COMPLEX OCP CONTACT

- Independent evidence for these constraints?
  - *COMPLEX, OCP drive phonological repairs outside of reduplication.
  - CONTACT-violating clusters permitted outside of reduplication.

Local summary: Conditions on reduplication

- C-copy reduplication is the "default" strategy, emerging whenever phonotactically licit.
- CV-copy reduplication occurs when C-copy reduplication would violate any of the following typologically grounded phonotactic constraints:

  *COMPLEX OCP CONTACT

- Independent evidence for these constraints?
  - *COMPLEX, OCP drive phonological repairs outside of reduplication.
  - CONTACT-violating clusters permitted outside of reduplication.

    ⇒ CV-copying captured as TETU effect under atemplatic infixing analysis.

Local summary: Conditions on reduplication

- C-copy reduplication is the "default" strategy, emerging whenever phonotactically licit.
- CV-copy reduplication occurs when C-copy reduplication would violate any of the following typologically grounded phonotactic constraints:

  *COMPLEX OCP CONTACT

- Independent evidence for these constraints?
  - *COMPLEX, OCP drive phonological repairs outside of reduplication.
  - CONTACT-violating clusters permitted outside of reduplication.

    ⇒ CV-copying captured as TETU effect under atemplatic infixing analysis.

    ⇒ But problematic under INFIXED-C analysis (see below).

UCLA

Implementing the infixing analysis I

- Descriptively, reduplicative morpheme is:
  - Infixed after initial *CV* of the stem.
  - Copies inward from stem's left-edge.
- (Undominated) ANCHOR-L-BR in (13) yields consistent left edge-in copying:

(13) ANCHOR-L-BR: The segment at the left edge of the reduplicant corresponds to the segment at the left-edge of the base.

(McCarthy and Prince 1995, *i.a.*)

- For an infixing analysis of similar reduplication patterns in Pima, see Riggle (2006).

UCLA

Implementing the infixing analysis II

- Position of reduplicative morpheme is determined by conflict between:
  - Preference for the reduplicant to be word-initial
  - Preference for root to be word-initial

Implementing the infixing analysis II

- Position of reduplicative morpheme is determined by conflict between:
  - Preference for the reduplicant to be word-initial — i.e. (14).
  - Preference for root to be word-initial — i.e. (15)

(14) RED-L: Align the left edge of the reduplicant with the left edge of the word (one violation per intervening segment).

(15) RT-L: Align the left edge of the root with the left edge of the word (one violation per intervening segment).

- For RED-L as a constraint on moraic alignment, see Appendix I.

Implementing the infixing analysis III

- Infixation of reduplicant arises because RT-L dominates RED-L, i.e. (16):

(16)

/´RED, túlnik - t͡ʃ/		*COMPLEX	RM	RT-L	RED-L
a.	tútulnikiʃ			*!*	
b. ☞	tútulnikiʃ				**
c.	ttúlnikiʃ	*!			*
d.	túlnikiʃ		*!		

- Smaller reduplicants — (c) and (d) above — that better satisfy RED-L are ruled out by *COMPLEX and (17):

(17) REALIZEMORPH (= RM): An input morpheme has a phonological exponent in the output. (Gafos 1998; Kurisu 2001, *i.a*)

UCLA

Deriving the size of the reduplicant I

- Placing a size restrictor like (18) in the TETU ranking in (19) prefers minimal (*C*) copying:

(18) *STRUC-σ: Assign one violation per σ in the output. (cf. Zoll 1993, 1994)

(19) MAX-IO ≫ *STRUC-σ ≫ MAX-BR

- (19) yields default C-copying in Cupeño, e.g. (20):

(20)

/RED, míxə - l/		MAX-IO	STRUC-σ	MAX-BR
a. ☞	mímxəl		**	****
b.	mímixəl		***!	***
c.	mím	*!**	*	*

Deriving the size of the reduplicant II

- Additional copying (*CV*) in reduplicant is driven by phonotactic constraints, which dominate *STRUC-σ:

(21) *COMPLEX, OCP, CONTACT ≫ *STRUC-σ ≫ MAX-BR

Deriving the size of the reduplicant II

- Additional copying (*CV*) in reduplicant is driven by phonotactic constraints, which dominate *STRUC-σ:

(21) *COMPLEX, OCP, CONTACT ≫ *STRUC-σ ≫ MAX-BR

- CV-copying emerges when C-copying would violate *COMPLEX:

(22)

/´RED, túlnik - t͡ʃ/	*COMPLEX	*STRUC-σ	MAX-BR
a. tútlnikiʃ	*!	***	******
b. ☞ tútulnikiʃ		****	*****

UCLA

Deriving the size of the reduplicant III

- Additional copying (*CV*) in reduplicant is driven by phonotactic constraints, which dominate *STRUC-σ:

(21) *COMPLEX, OCP, CONTACT ≫ *STRUC-σ ≫ MAX-BR

- CV-copying emerges when C-copying would violate the OCP:

(23)

/´RED, tát͡ʃ - in/	OCP	*STRUC-σ	MAX-BR
a. tátt͡ʃin	*!	**	****
b. ☞ tátat͡ʃin		***	***

Deriving the size of the reduplicant IV

- Additional copying (*CV*) in reduplicant is driven by phonotactic constraints, which dominate *STRUC-σ:

(21) *COMPLEX, OCP, CONTACT ≫ *STRUC-σ ≫ MAX-BR

- CV-copying emerges when C-copying would violate CONTACT:

(24)

/´RED, páŋ - t͡ʃ/		CONTACT	*STRUC-σ	MAX-BR
a.	páp**ŋ**iʃ	*!	**	***
b. ☞	pápa**ŋ**iʃ		***	**

Comparing the prefixing analysis

- How does the prefixing analysis (Hill 2005) compare?
  - Reduplicant is a CV prefix + copies from the left-edge of the stem.
  - Reduplicant induces syncope of 1σ of stem where phonotactically licit.
  - Similar reduplicative patterns analyzed using SWP (e.g. Tohono O'odham; Fitzgerald 1997, 1999):

(25) STRESS-TO-WEIGHT PRINCIPLE (SWP): Stressed syllables are heavy.

Against the prefixing analysis

- Reduplicant is stressed, but SWP does not generally induce syncope of post-tonic vowels in Cupeño:

(26)

/mə́niqi - t͡ʃ/	→	mə́niqiʃ ‘mesquite beans’	([x]məńqiʃ)
/kútapi - t͡ʃ/	→	kútapiʃ ‘bow’	([x]kútpiʃ)

Against the prefixing analysis

- Reduplicant is stressed, but SWP does not generally induce syncope of post-tonic vowels in Cupeño:

(26)

/mə́niqi - t͡ʃ/	→	mə́niqiʃ ‘mesquite beans’	(*mə́ńqiʃ)
/kútapi - t͡ʃ/	→	kútapiʃ ‘bow’	(*kútpiʃ)

- Licensing syncope in the context of reduplication necessitates additional assumptions:

Against the prefixing analysis

- Reduplicant is stressed, but SWP does not generally induce syncope of post-tonic vowels in Cupeño:

(26)

/mə́niqi - t͡ʃ/	→	mə́niqiʃ ‘mesquite beans’	(ˣmə́ńqiʃ)
/kútapi - t͡ʃ/	→	kútapiʃ ‘bow’	(ˣkútpiʃ)

- Licensing syncope in the context of reduplication necessitates additional assumptions:
  - Positing a lexically indexed constraint (Yates 2017) — but lacks clear (synchronic) motivation.

Against the prefixing analysis

- Reduplicant is stressed, but SWP does not generally induce syncope of post-tonic vowels in Cupeño:

(26)

/mə́niqi - t͡ʃ/	→	mə́niqiʃ ‘mesquite beans’	(ˣmə́ńqiʃ)
/kútapi - t͡ʃ/	→	kútapiʃ ‘bow’	(ˣkútpiʃ)

- Licensing syncope in the context of reduplication necessitates additional assumptions:
  - Positing a lexically indexed constraint (Yates 2017) — but lacks clear (synchronic) motivation.
  - Adopting “existential faithfulness” (Struijke 2002) — but as shown by Riggle (2006), leads to typological overgeneration.

Against the prefixing analysis

- Reduplicant is stressed, but SWP does not generally induce syncope of post-tonic vowels in Cupeño:

(26)

/mə́niqi - t͡ʃ/	→	mə́niqiʃ ‘mesquite beans’	(ˣmə́ńqiʃ)
/kútapi - t͡ʃ/	→	kútapiʃ ‘bow’	(ˣkútpiʃ)

- Licensing syncope in the context of reduplication necessitates additional assumptions:
  - Positing a lexically indexed constraint (Yates 2017) — but lacks clear (synchronic) motivation.
  - Adopting “existential faithfulness” (Struijke 2002) — but as shown by Riggle (2006), leads to typological overgeneration.

⇒ The prefixing analysis *can* handle the data, but requires unattractive theoretical assumptions.

UCLA

Comparing the INFIXED-C analysis I

- How does the INFIXED-C analysis (Haynes 2007) compare?
  - Reduplicant is similarly infixed after initial *CV* of stem + copies from its left-edge.
  - But the reduplicant is just an empty-*C* slot.

  ⇒ CV-copying derived by vowel epenthesis.
    - Content of the epenthetic vowel is filled by autosegmental spreading (e.g. Kawahara 2007) or correspondence-based copying (e.g. Kitto and de Lacy 1999; Stanton and Zukoff to appear).

Comparing the INFIXED-C analysis II

- INFIXED-C plausibly handles CV-copying driven by *COMPLEX and OCP.
  - *COMPLEX, OCP are (natively) inviolable.
  - And regularly drive repairs outside of reduplication — (e.g.) epenthesis occurs when the "absolutive" suffix would produce a complex coda:

(27)

/wíw - t͡ʃ/		*COMPLEX	DEP-V
a.	wíwʃ	*!	
b. ☞	wíw-iʃ		*

Comparing the INFIXED-C analysis III

⇒ Complex margin created by infixed *C* reduplicant would predictably be repaired by epenthesis:

(28)

/*C*, túlnik - t͡ʃ/		*COMPLEX	DEP-V
a.	tútlnikiʃ	*!	
b. ☞	tútulnikiʃ		*

Against the INFIXED-*C* analysis I

- But CONTACT-driven CV-copying is problematic under INFIXED-*C*.
  - CONTACT violations are not ordinarily repaired outside of reduplication — (e.g.) no epenthesis in (29):

(29)

/púk - ŋax/		DEP-V	CONTACT
a.	☞ púkŋax		*
b.	púkiŋax	*!	

Against the INFIXED-*C* analysis II

⇒ General phonological constraints then wrongly predict C-copy reduplication in (30):

(30)

/*C*, páŋ - t͡ʃ/	*COMPLEX	DEP-V	CONTACT
a. 💣 pápŋiʃ			*
b. ☹ pápaŋiʃ		*!	

⇒ Epenthesis would (somehow) have to be specially licensed in reduplication under INFIXED-C analysis.

Local summary: Comparing analyses

- Prefixing analysis requires assumptions that are empirically unmotivated and/or theoretically objectionable.

Local summary: Comparing analyses

- Prefixing analysis requires assumptions that are empirically unmotivated and/or theoretically objectionable.
- INFIXED-C analysis fails on CONTACT-driven CV-copying reduplication.
  - Fixing it would require similarly problematic assumptions.

Local summary: Comparing analyses

- Prefixing analysis requires assumptions that are empirically unmotivated and/or theoretically objectionable.
- INFIXED-C analysis fails on CONTACT-driven CV-copying reduplication.
  - Fixing it would require similarly problematic assumptions.
- Proposed atemplatic infixing analysis accounts for variation in the size of the reduplicant.
  - CONTACT-driven CV-copying arises as a TETU effect.

Local summary: Comparing analyses

- Prefixing analysis requires assumptions that are empirically unmotivated and/or theoretically objectionable.
- INFIXED-C analysis fails on CONTACT-driven CV-copying reduplication.
  - Fixing it would require similarly problematic assumptions.
- Proposed atemplatic infixing analysis accounts for variation in the size of the reduplicant.
  - CONTACT-driven CV-copying arises as a TETU effect.
- But what about the exceptional word-initial stress pattern?

Stress in Cupeño

- Cupeño words have a single primary stress, the distribution of which is phonologically unpredictable:

(31)	a.	[háxa-l]	'sand-ABSL'	vs.	[kaxá-l]	'valley quail-ABSL'
	b.	[ṣáwi-ʃ]	'bread-ABSL'		[kawí-ʃ]	'rock-ABSL'
	c.	[pə-pá-qal]	'3SG-drink-PST.IPFV.SG.'		[pə-ya-qál]	'3SG-say--PST.IPFV.SG.'

⇒ Accounting for the distribution of stress requires:

- Abstract lexical marking for prominence (ACCENT).
  - (e.g.) /háxa-l/ vs. /kaxá-l/ in (31a)
- (Morpho)phonological principles of accent resolution.

(cf. Hill and Hill 1968; Alderete 1999, 2001a,b; Yates to appear)

UCLA

Stress & reduplication I

- Outside of reduplication, stress regularly falls on the accented syllable of the root (Hill and Hill 1968; Alderete 2001b).
- But reduplicated forms consistently have initial stress, including when the base has 2σ lexical stress as in (3b).

(2) **CV-copy reduplication:**

hɛ́lʔiʃ	'wide.SG'	:	hɛ́hɛlʔiʃ	'wide.PL'
páŋiʃ	'new.SG'	:	pápaŋiʃ	'new.PL'

(3) **C-copy reduplication:**

a.	míxəl	'custom'	:	mímxəl	'customs'
b.	ʔawə́lβə	'grown-up.SG'	:	ʔáʔwəlβə	'grown-up.PL'

- There are a few exceptions: [ʂáʔvit] : [ʂaʂáʔvit] 'Mexican(s)'; [k^{w}áw] 'shout' : [k^{w}ak^{w}áw] 'call several times', and several *–in*-class verbs (see Appendix II).

UCLA

Stress & reduplication II

- More examples of /σσ́/ reduplicated roots in (32):

(32)

waβáʂiʃ	'long.SG'	:	wáwβaʂitʃ-am	'long.PL'
kaβáʔmal	'olla'	:	kákβaʔmal-im	'ollas'
ʔələ́lʔiʃ	'bad, ugly.SG'	:	ʔə́ʔləlʔish	bad, ugly.PL'
ʔulá:n	'sew'	:	ʔúʔla	'sew'
naxán-itʃ	'man'	:	nánxat͡ʃ-im	'men'

- Why does pre-reduplicant σ attract stress in preference to accented root σ?

Stress & reduplication II

- More examples of /σσ́/ reduplicated roots in (32):

	waβáʂiʃ	'long.SG'	:	wáwβaʂitʃ-am	'long.PL'
	kaβáʔmal	'olla'	:	kákβaʔmal-im	'ollas'
(32)	ʔələ́lʔiʃ	'bad, ugly.SG'	:	ʔə́ʔləlʔish	bad, ugly.PL'
	ʔulá:n	'sew'	:	ʔúʔla	'sew'
	naxán-itʃ	'man'	:	nánxa͡tʃ-im	'men'

  - Why does pre-reduplicant σ attract stress in preference to accented root σ?
    - "Pre-stressing" pattern is paralleled elsewhere in Cupeño…

- (32) also problematic for Haynes (2007), who assumes that the *C*-reduplicant is infixed after the lexically accented root syllable to avoid this type of "stress shift."

UCLA

Preaccentuation in Cupeño

- Cupeño has a set of PREACCENTING morphemes (marked ´–), which place a lexical accent on immediately preceding σ.
  - Stress attracted to preceding σ if no other accents, e.g. (33a):
  - But assigned to an accented morpheme to its left, e.g. (33b):

(33)

a.	/pə - tama - ´ʔaw/	→	[pə-tamá-ʔaw]	‘3SG-mouth-LOC’
	/nə - muu̯su - ´m/	→	[pə-muu̯sú-m]	‘3SG-beard-PL
b.	/háxa - ´ʔaw/	→	[háxa-ʔaw]	‘sand-LOC’
	/ʔatáxa - ´m/	→	[ʔatáxa-m]	‘person-PL’

Preaccentuation in Cupeño

- Cupeño has a set of PREACCENTING morphemes (marked ´–), which place a lexical accent on immediately preceding σ.
  - Stress attracted to preceding σ if no other accents, e.g. (33a):
  - But assigned to an accented morpheme to its left, e.g. (33b):

(33)

a.	/pə - tama - ´ʔaw/	→	[pə-tamá-ʔaw]	‘3SG-mouth-LOC’
	/nə - muu̯su - ´m/	→	[pə-muu̯sú-m]	‘3SG-beard-PL
b.	/háxa - ´ʔaw/	→	[háxa-ʔaw]	‘sand-LOC’
	/ʔatáxa - ´m/	→	[ʔatáxa-m]	‘person-PL’

- (33) consistent with a different generalization about Cupeño stress:

Stress the leftmost lexically accented syllable, else the word’s left edge.

(cf. Yates to appear)

UCLA

Preaccentuation in reduplication

- Reduplicative morpheme may be analyzed as preaccenting, i.e. /´RED/.

  ⇒ Stress in reduplication falls on pre-reduplicant σ in accordance with general leftmost preference — e.g. (34):

(34) a.

/hɛ́ - ´RED - lʔ - t͡ʃ/	→	[hɛ́hɛlʔiʃ] 'wide.PL'
/tə́ - ´RED - t͡ʃ - in/	→	[tə́tət͡ʃ-in] 'be grabbing'

b.

/ʔa - ´RED - wə́lvə/	→	[ʔáʔwəlvə] 'grown-up.PL'
/ka - ´RED - βáʔmal - m/	→	[kákβaʔmalim] 'ollas-PL'

- Analyzing Cupeño partial reduplication as infixation explains:

- Analyzing Cupeño partial reduplication as infixation explains:
  - (i) Size variation in the reduplicant (*C* vs. *CV*).
    - Including deriving CONTACT-driven CV-copying as a TETU effect.
    - And without additional and/or unmotivated assumptions.

- Analyzing Cupeño partial reduplication as infixation explains:

  (i) Size variation in the reduplicant (*C* vs. *CV*).
  - Including deriving CONTACT-driven CV-copying as a TETU effect.
  - And without additional and/or unmotivated assumptions.

  (ii) Consistent initial stress, which results from interaction between:
  - Pre-accenting feature on the reduplicative morpheme.
  - General phonological preference for leftmost stress in Cupeño.

Thank you!

- Special thanks to Pamela Munro, Dustin Bowers, Ryan Sandell, Sam Zukoff, and the members of the UCLA Phonology and American Indian Linguistics Seminars.

References I

Alderete, John D. 1999. Morphologically Governed Accent in Optimality Theory. Ph.D. diss., University of Massachusetts, Amherst.

———. 2001a. *Morphologically Governed Accent in Optimality Theory*. New York: Routledge.

———. 2001b. Root-Controlled Accent in Cupeño. *Natural Language & Linguistic Theory* 19(3).455–502.

Bright, William, and Jane H. Hill. 1967. Linguistic history of the Cupeño. In Dell H. Hymes and William E. Bittle (eds.), *Studies in Southeastern Ethnolinguistics*, 352–391. The Hague: Mouton.

Fitzgerald, Colleen M. 1997. O'Odham Rhythms. Ph.D. diss., University of Arizona.

———. 1999. Unfaithful bases and syncope in Tohono O'odham reduplication. Paper presented at the 18th Annual West Coast Conference on Formal Linguistics, Phoenix, AZ, 9 April 1999.

UCLA

References II

Gafos, Adamantios. 1998. A-templatic reduplication. *Linguistic Inquiry* 29.515–527.

Golla, Victor. 2011. *California Indian Languages*. Berkeley: University of California Press.

Gouskova, Maria. 2004. Relational hierarchies in Optimality Theory: The case of syllable contact. *Phonology* 21(2).201–250.

Haynes, Erin Flynn. 2007. An Explanation of Base TETU Effects in Kwak'wala and Cupeño. In *Proceedings of the 33rd Annual Meeting of the Berkeley Linguistics Society*, 191–202.

Hill, Jane H. 2005. *A Grammar of Cupeño*. Los Angeles / Berkeley, CA: University of California Press.

Hill, Jane H., and Kenneth C. Hill. 1968. Stress in the Cupan (Uto-Aztecan) Languages. *International Journal of American Linguistics* 34(4).233–241.

References III

Kawahara, Shigeto. 2007. Copying and spreading in phonological theory: Evidence from echo epenthesis. In L. Bateman, A. Werle, E. Reilly and O'Keefe M. (eds.), *Papers in Optimality Theory III: University of Massachusetts Occasional Papers*, 111–114. Amherst, MA: GSLA.

Kitto, Catherine, and Paul de Lacy. 1999. Correspondence and epenthetic quality. In *Proceedings of the VIth Annual Meeting of the Austronesian Formal Linguistics Association*, 181–200.

Kurisu, Kazutaka. 2001. University of California, Santa Cruz. Ph.D. diss., The Phonology of Morpheme Realization.

McCarthy, John, and Alan Prince. 1995. Faithfulness and reduplicative identity. In Jill N. Beckman, Laura W. Dickey and Suzanne Urbanczyk (eds.), *University of Massachusetts Occasional Papers 18: Papers in Optimality Theory*, 249–384. University of Massachusetts.

McCarthy, John J. 1986. Linguistic Inquiry. *Linguistic Inquiry* 17.207–263.

UCLA

References IV

Parker, Stephen G. 2002. Quantifying the Sonority Hierarchy. Ph.D. diss., University of Massachusetts, Amherst.

Riggle, Jason. 2006. Infixing Reduplication in Pima and its Theoretical Consequences. *Natural Language & Linguistic Theory* 24(3).857–891.

Stanton, Juliette, and Sam Zukoff. submitted. Prosodic identity in copy epenthesis: Evidence for a correspondence-based approach .

———. to appear. Prosodic effects of segmental correspondence. In *Proceedings of the 51st Annual Meeting of the Chicago Linguistics Society*.

Struijke, Caro. 2002. *Existential faithfulness: A Study of Reduplicative TETU, Feature Movement, and Dissimilation*. New York: Routledge.

Vennemann, Theo. 1988. *Preference Laws for Syllable Structure and the Explanation of Sound Change*. Berlin: de Gruyter.

UCLA

References V

Yates, Anthony D. 2017. The Phonology of Cupeño *X*-fixing Reduplication. Paper presented at the 2017 Annual Meeting of the Society for the Study of the Indigenous Languages of the Americas, Austin, TX, 7 January 2017 (Slides available at: http://www.adyates.com/research).

———. to appear. Against Root Faithfulness in Cupeño Stress. In *Supplemental Proceedings of the 2016 Annual Meeting on Phonology*. (Ms. available at: http://www.adyates.com/research).

Yip, Moira. 1988. The Obligatory Contour Principle and Phonological Rules: A Loss of Identity. *Linguistic Inquiry* 19.65–100.

Zoll, Cheryl. 1993. Ghost segments and optimality. In Edwin Duncan, Donka Farkas and Philip Spaelti (eds.), *Proceedings of the 12th West Coast Conference on Formal Linguistics*, 183–199. Stanford, CA: CSLI.

———. 1994. Subsegmental parsing: Floating features in Chaha and Yawelmani. In Jason Merchant, Jaye Padgett and Rachel Walker (eds.), *Phonology at Santa Cruz*, vol. 3, 47–56.

UCLA

Reduplication in $\bar{V}$ bases I

- Long vowel (monosyllabic) bases *appear* to show CV-copy reduplication (with short vowels in both 1σ and 2σ):

(35)

ʔíːɲo	‘Indian’	:	ʔíʔiɲo-ʔom ‘Indians’	(ˣíːʔ.)
kíː-mal	‘boy’	:	kíki-tam ‘boys’	(ˣíːk.)
púːl	‘doctor’	:	púβul-im ‘doctors’	(ˣúːβ.)

- Infixing analyses treat this pattern as C-copy, with reduplicant splitting the initial long vowel (cf. Haynes 2007).
  - (e.g.) [ʔíɨʔiɨɲo-ʔom] in (35).

UCLA

Reduplication in $\bar{V}$ bases II

- Why is attested [ʔíʔiɲo-ʔom] preferred to (e.g.) [x][ʔíːʔɲo-ʔom]?

Reduplication in $\bar{V}$ bases II

- Why is attested [ʔíʔiɲo-ʔom] preferred to (e.g.) *[ʔíːʔɲo-ʔom]?
- Infixation of reduplicant after $\bar{V}$ is ruled out by:

Reduplication in $\bar{V}$ bases II

- Why is attested [ʔíʔiɲo-ʔom] preferred to (e.g.) *[ʔíːʔɲo-ʔom]?
- Infixation of reduplicant after $\bar{V}$ is ruled out by:
  - Framing RED-L as a constraint on moraic alignment — infixing after $\bar{V}$ too far from left edge of ω (cf. Haynes 2007).

Reduplication in $\bar{V}$ bases II

- Why is attested [ʔíʔiɲo-ʔom] preferred to (e.g.) *[ʔíːʔɲo-ʔom]?
- Infixation of reduplicant after $\bar{V}$ is ruled out by:
  - Framing RED-L as a constraint on moraic alignment — infixing after $\bar{V}$ too far from left edge of ω (cf. Haynes 2007).
  - Or *SUPERHEAVY ("No $\mu\mu\mu$ syllables") — for possible independent evidence in Cupeño, see Hill (2005:37–8).
- *SUPERHEAVY approach requires further constraints to rule out alternative candidates with $\bar{V}$-shortening (MAX-μ) and with BR-mismatches in vowel length (IDENT-BR[long]).

Irregularities in reduplication I

- Reduplicated verbs containing the thematic suffix /-in/ are a locus of irregularities — they can show:
  - (i) Non-initial stress
  - (ii) Over-application of syncope
  - (iii) Under-application of syncope/overcopying

(36) ʎáwin ‘dig’ : ʎaʎáwin ‘dig repeatedly’

Irregularities in reduplication I

- Reduplicated verbs containing the thematic suffix *–in* are a locus of irregularities — they can show:
  - (i) Non-initial stress
  - (ii) Over-application of syncope
  - (iii) Under-application of syncope/overcopying

(37)

(pə́-)təw	'(he) sees'	:	tə́twin	'look around'
təwin	'glance'			

Irregularities in reduplication I

- Reduplicated verbs containing the thematic suffix *–in* are a locus of irregularities — they can show:
  - (i) Non-initial stress
  - (ii) Over-application of syncope
  - (iii) Under-application of syncope/overcopying

(38)

páqin	'slap'	:	pápaqin	'slap (of multiple subj.)'
tə́xin	'poke hole'	:	tátaxin	'poke several holes'
wə́kin	'slice '	:	wə́wəkin	'cut up in slices'

Irregularities in reduplication I

- In a few cases the same verbal roots have reduplicated forms suffixed with /-aːn/, which instead show syncope, e.g. (39):

(39) tá-tx-an ‘poke’
wə́-wk-an ‘cut up’

- In general, *in*-class verbs show many irregularities, including unexplained stress shifts; see Hill (2005) for discussion.

Irregularities in reduplication II

- A few additional items unexpectedly show CV-copy reduplication:

(40)

yámuk^{w}iʃ	‘naughty.SG’	:	yáyamuktʃam	‘naughty.PL’
sə́qəpiʃ	‘mushroom’	:	sə́səqəpiʃ	‘mushrooms’
həlúmal	‘old, ragged clothes.SG’	:	həlúlumal	‘old, ragged clothes.PL’