

The Phonology of Cupeño *X*-fixing Reduplication

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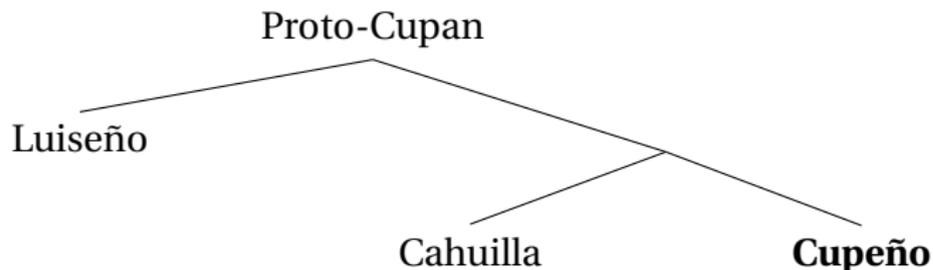
Introduction

- ▶ Partial copy reduplication in Cupeño (Takic, Uto-Aztecan) encodes a range of grammatical functions, including:
 - ▶ Aspectual modification in verbs
 - ▶ Pluralization in nouns and adjectives.

	píŋin	‘knock’	:	pípiŋin	‘knock several times’
(1)	páβəl	‘deer priest’	:	pápaβəl-im	‘deer priests-PL’
	páŋiʃ	‘new.SG’	:	pápaŋiʃ	‘new.PL’

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).

Formal aspects of Cupeño reduplication I

- ▶ Two formal features of Cupeño partial reduplication must be accounted for:
 - ▶ Variation in the amount of additional segmental material in reduplicated forms w.r.t. to the base.
 - ▶ Consistent word-initial stress in reduplicated forms.

Formal aspects of Cupeño reduplication II

- ▶ Majority of reduplicated forms show an additional CV w.r.t. their base as in (2), resulting in an initial light syllable.

(2) “Light” reduplication:

hélʔij ‘wide.SG’ : héhélʔij ‘wide.PL’
páŋij ‘new.SG’ : pápáŋij ‘new.PL’

- ▶ But in a subset of cases, there is only an additional C as in (3), resulting in an initial heavy syllable:

(3) “Heavy” reduplication:

- a. míxəl ‘custom’ : mímxəl ‘customs’
b. ʔawəlβə ‘grown-up.SG’ : ʔáʔwəlβə ‘grown-up.PL’

Formal aspects of Cupeño reduplication III

- ▶ Cupeño has lexical stress (marked with $\acute{}$), which generally falls on the accented syllable of the root (Hill and Hill 1968; Alderete 2001).
- ▶ But reduplicated forms regularly have initial stress, including when the base has 2σ lexical stress as in (3b).

(2) “Light” reduplication:

hélʔij ‘wide.SG’ : héhélʔij ‘wide.PL’

páŋij ‘new.SG’ : pápaŋij ‘new.PL’

(3) “Heavy” reduplication:

a. míxəl ‘custom’ : mímxəl ‘customs’

b. ʔawəlβə ‘grown-up.SG’ : ʔáʔwəlβə ‘grown-up.PL’

- There are a few exceptions: [ʃáʔvit] : [ʃaʃáʔvit] ‘Mexican(s)’, [k^wáw] ‘shout’ : [k^wak^wáw] ‘call several times’, and several *-in*-class verbs (see Appendix III).

Previous analyses

- ▶ Two analyses of Cupeño partial reduplication have been proposed:
 - ▶ Hill (2005): prefixed CV **reduplicant** +/- root vowel syncope; syncope is blocked in (2) by phonotactic constraints.
 - ▶ Haynes (2007): infix *C* reduplicant; additional *V* copy epenthesis in (2) is driven by phonotactic constraints.

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a. míxəl ‘custom’ : **mí**mɨxəl ‘customs’

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Goals

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- ▶ Outline an optimality-theoretic prefixing analysis of Cupeño reduplication:
 - ▶ Reduplicant is a lexically accented *CV* prefix, attracting stress away from the root.
 - ▶ Preference for stressed reduplicants to be heavy drives syncope of 1σ of the root.
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 - ▶ Syncope is blocked by phonotactic constraints.
- ▶ Compare two alternative analyses: INFIXED-C, atemplatic infixation

Conditions on “light” reduplication I

- ▶ “Light” reduplication — the more common pattern — is exceptionless when “heavy” reduplication would produce a complex syllable margin:

	ʔáyʔaniʃ	‘big.SG’	:	ʔáʔayʔantʃ̣-am	‘big.PL’	(^x ʔyʔ)
	túlnikiʃ	‘black.SG’	:	tútulnikiʃ	‘black.PL’	(^x tln)
	súpləwi-t	‘one’	:	súsupləwət	‘each one’	(^x spl)
(4)	kíʃ	‘house’	:	kíkíʃ	‘houses’	(^x kʃ#)
	(pá)-yax	‘(he) says’	:	yáyax	‘be saying’	(^x yx#)
	(pú-)kuʃ	‘(he) takes’	:	kúkuʃ	‘take repeatedly’	(^x kʃ#)
	(pə-)máx	‘(he) grinds’	:	mámáx	‘be grinding’	(^x mʃ#)

⇒ In OT terms, “heavy” reduplication would violate *COMPLEX (e.g. Prince and Smolensky 1993/2004).

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

Conditions on “light” reduplication II

- ▶ “Light” reduplication is found in a few items when “heavy” reduplication would result in a sequence of featurally similar adjacent segments:

- (6) $tát\hat{f}in$ ‘grab’ : $tátət\hat{f}in$ ‘be grabbing’ (${}^x t.t\hat{f}$)
 $pá\beta əl$ ‘deer priest’ : $pápa\beta əl-im$ ‘deer priests’ (${}^x p.\beta$)

⇒ “Heavy” reduplication would violate the OCP (e.g. McCarthy 1986; Yip 1988).

- (7) $OCP_{PL/SO\bar{N}}$: Adjacent segments with the same value for [place] and [sonorant] are not permitted.

Conditions on “light” reduplication III

- ▶ “Light” reduplication also occurs when “heavy” reduplication would yield a steeply rising sonority (obstruent-sonorant) cluster across a syllable boundary.

	páŋij	‘new.SG’	:	pápaŋij	‘new.PL’	(^x p.ŋ)
(8)	ʔa-kúli	‘ADJ-little.SG’	:	ʔa-kúku (-m) <td>‘ADJ-little.PL’</td> <td>(^xk.ʌ)</td>	‘ADJ-little.PL’	(^x k.ʌ)
	píŋin	‘knock’	:	pípiŋin	‘knock several times’	(^x p.ŋ)
	tʃéŋin	‘kick’	:	tʃátʃəŋin	‘be kicking’	(^x f.ŋ)

- ⇒ “Heavy” reduplication would violate CONTACT (e.g. Vennemann 1988; Gouskova 2004b).

Conditions on “heavy” reduplication I

- ▶ “Heavy” reduplication emerges whenever it would violate none of the above phonotactic constraints.

- ▶ Bases with 1σ stress like (9) show “heavy” reduplication:

nát	‘chief’	:	nántam	‘chiefs’
nít	‘pregnant woman’	:	níntam	‘pregnant women’
(pá-)max	‘(he) gives’	:	mámxat	‘several things given’
(9) ηátin	‘cut with axe’	:	ηánti	‘split wood’
míxəl	‘custom’	:	mímxəl	‘customs’
wík	‘step on’	:	wíwkan	‘step on several times’
tápil	‘weave’	:	tótpil	‘be weaving’

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

Conditions on “heavy” reduplication I

- ▶ “Heavy” reduplication emerges whenever it would violate none of the above phonotactic constraints.

- ▶ Bases with 2σ stress like (10) consistently show “heavy” reduplication:

	waβáʃiʃ	‘long.SG’	:	wáwβaʃiʃ-am	‘long.PL’
	naxán-itʃ	‘man’	:	nánaxatʃ-im	‘men’
(10)	naxán-tʃuʔ-βel	‘old man’	:	nánaxa-βəl-im	‘old men’
	kaβáʔmal	‘olla’	:	kákβaʔmal-im	‘ollas’
	nawí-kat	‘woman’	:	nánwit-am	‘women’

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

Conditions on “heavy” reduplication II

- ▶ With respect to sonority sequencing, glottal stops pattern with sonorants.
 - ▶ Thus glottal stop-sonorant sequences are permissible across syllable boundaries, e.g. (11):

	ʔáyət	‘thief’	:	ʔáʔyət-im	‘thieves’
	ʔúnin	‘show’	:	ʔúʔnin	‘show repeatedly; teach’
(11)	ʔawəlvə	‘grown-up.SG’	:	ʔáʔwəlvə	‘grown-up.PL’
	ʔələlʔiʃ	‘bad, ugly.SG’	:	ʔáʔləlʔiʃ	‘bad, ugly.PL’
	ʔulá:n	‘sew’	:	ʔúʔla	‘sew’

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

Local summary: Conditions on reduplication

- ▶ “Heavy” reduplication is the “default” strategy, emerging whenever phonotactically licit.
- ▶ “Light” reduplication occurs when “heavy” reduplication would violate any of the following typologically grounded phonotactic constraints:
 - *COMPLEX · CONTACT
 - OCP

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- ▶ “Light” reduplication occurs when “heavy” reduplication would violate any of the following typologically grounded phonotactic constraints:
 - *COMPLEX · CONTACT
 - OCP
- ▶ Yet there is a difference in the status of these constraints in the grammar.
 - ▶ *COMPLEX, OCP are domain general, driving phonological repairs outside of reduplication.
 - ▶ *CONTACT has effects clearly observable only in reduplication.

Motivating constraints I

- ▶ There is independent support in the grammar for *COMPLEX:
 - ▶ Complex codas are strictly banned in Cupeño.
 - ▶ Complex onsets are attested only in loan words and then only in word-initial position, e.g. (12) (Hill 2005:20):

- (12) trá:pu ‘cloth’ < Sp. *trapo*
 krí:tu ‘streetcar’ < Eng. *streetcar*

Motivating constraints I

- ▶ *COMPLEX additionally drives epenthesis at right word edge in suffixed forms — for instance, with the “absolute” suffixes in (13):

(13) C-final stem + ABSL:

/wíw-tʃ/ → wíwɪʃ ‘acorn mush’ (acorn.mush-ABSL)

/ʔátʃ-ʌ/ → ʔátʃɪʌ ‘animal’ (animal-ABSL)

- Possessed forms confirm that the epenthetic vowel is not underlying — cf. [nə-wíw] ‘my-acorn mush’, [pə-ʔáʃ] ‘his-animal.’

Motivating constraints II

- ▶ There is also independent support in the grammar for the OCP.
 - ▶ Sequences of identical consonants are unattested.
 - ▶ Clusters of identical or similar consonants arising via ordinary affixation are repaired (cf. Hill 2005:47–8), e.g. (14–15):

(14) Identical ⇒ deletion / glottalization:

/tʃəm - há**l** - **l**u - wən/ → tʃəmhá**l**u wən ‘they were going to search’ (ˀll)
 /pəm - təsí**w** - **w**ən/ → pəmtəsí**w**ən ‘they were playing’ (ˀww)
 /pə**m** - **m**a/ → pəʔ**m**a ‘their hands’ (ˀmm)

(15) Similar ⇒ deletion/glottalization:

/yál - ya**x** - **q**á/ → yála**q**a ‘is jumping’ (ˀxq)
 /pátʃi**k** - **q**á/ → pátʃi(ʔ)**q**a ‘is leaching acorns’ (ˀkq)

Motivating constraints III

- ▶ Unlike *COMPLEX and OCP, violations of CONTACT are permitted in Cupeño:

- ▶ Heterosyllabic rising sonority clusters are attested both (16a) morpheme-internally and (16b) at morpheme boundaries:

- (16) a. (pə-)maklákma ‘(his) jaw’ b. púk-ŋax ‘at the door’
 súpluwət ‘one’ saβát-ʔaw ‘on the grass’
 (pə-)síxnen ‘(s)he cooked’ yú:ya-x-ŋaʔaw ‘in Cahuilla’

⇒ CONTACT violations are repaired only in reduplication.

Local summary: Cupeño phonotactics

- ▶ *COMPLEX, OCP are inviolable in the native lexicon, and so likely undominated in the grammar.
- ▶ Repair of *COMPLEX violations by epenthesis implies the strict ranking in (17a):

(17) a. *COMPLEX \gg DEP-V (“Don’t insert vowels.”)

b.

	wíw - tʃ	*COMPLEX	*DEP-V
a.	wíwʃ	*!	
b.	☞ wíw-ɨʃ		*

Local summary: Cupeño phonotactics

- ▶ *CONTACT is violable, but have observable effects in reduplication.
- ▶ Non-repair of CONTACT violations by epenthesis implies the strict ranking in (18a):

(18) a. DEP-V \gg CONTACT

b.

	púk - ηax	DEP-V	CONTACT
a.	 púkηax		*
b.	púk ⁱ ηax	*!	

- ▶ (17–18) together suggest the combined constraint ranking in (19):

(19) *COMPLEX, OCP \gg DEP-V \gg CONTACT

Implementing the prefixing analysis I

- ▶ Under the prefixing analysis, the reduplicant is:
 - ▶ Consistently a prefix of shape *CV*.
 - ▶ Copies from the left-edge of base.
- ▶ These properties can be implemented in a variety of ways:
 - ▶ See (e.g.) Fitzgerald 1997 for a templatic analysis
 - ▶ Or for atemplatic alternatives, Spaelti 1999, Hendricks 1999, Gouskova 2004a, Riggle 2006, Zukoff to appear.

Implementing the prefixing analysis II

- ▶ The prefixing analysis accounts straightforwardly for word-initial stress in reduplication.
 - ▶ The prefixed reduplicative morpheme is lexically accented, i.e. /RÉD/.
 - ▶ The accent of the **reduplicant** attracts accent away from the (accented) root to its right.

- (20) a. /RÉD - hélʔ - tʃ/ → **hɛ**hɛlʔiʃ ‘wide.PL’
 b. /RÉD - ʔawəlβə/ → **ʔá**ʔwəlβə ‘grown-up.PL’

- ▶ (20) is consistent with general principles of stress assignment in Cupeño:

When one or more lexically accented morphemes are present, stress falls on the LEFTMOST (Yates to appear).

Implementing the prefixing analysis III

- ▶ “Light/heavy” reduplication is determined by an interaction between phonotactic constraints and (21) a constraint driving syncope of the initial root vowel:

(21) STRESS-TO-WEIGHT_{RED} (SWP_{RED}): Stressed syllables are heavy (in words containing /RÉD/).

- On lexically indexed constraints, see (e.g.) Itô and Mester 1999, 2001; Pater 2000, 2009.
- An alternative to (21) would be to adopt Struijke’s (2002) \exists -MAX-V and derive syncope by general SWP (cf. Fitzgerald 1997 on Tohono O’odham).

Implementing the prefixing analysis IV

- ▶ SWP_{RED} is a morpheme-specific version of SWP (e.g. Prokosch 1939; Fitzgerald 1997).
- ▶ SWP does not generally induce syncope of post-tonic vowels, e.g. (22):

(22) $/m\acute{e}niqi - \widehat{tʃ}/ \rightarrow m\acute{e}niqij$ ‘mesquite beans’ ($^x m\acute{e}niqij$)
 $/k\acute{u}tapi - \widehat{tʃ}/ \rightarrow k\acute{u}tapij$ ‘bow’ ($^x k\acute{u}tpij$)

- ▶ But likely did historically — perhaps leaving behind SWP_{RED} as an archaism in the grammar (cf. Zukoff to appear).
 - ▶ See Appendix II for some comparative evidence.

Developing the prefixing analysis I

- ▶ To drive syncope, SWP_{RED} dominates both SWP and MAX-V.

(23) $SWP_{RED} \gg MAX-V$ (“Don’t delete vowels.”) $\gg SWP$

- ▶ (23) yields “heavy” reduplication when no phonotactic constraints are violated, e.g. (24):

(24) a. míxəl ‘custom’ : mímxəl ‘customs’

b.

	RÉD - míxə - l	SWP_{RED}	MAX-V	SWP
a.	mímixəl	*!		*
b.	 mímxəl		*	

Developing the prefixing analysis II

- ▶ SWP_{RED} is dominated by inviolable phonotactic constraints *COMPLEX and OCP:

(25) *COMPLEX, OCP \gg SWP_{RED} \gg MAX-V

- ▶ Whenever either of these constraints would be violated, syncope is blocked and “light” reduplication occurs — (e.g.) by *COMPLEX in (26):

(26) a. túlnikif ‘black.SG’ : tútulnikif ‘black.PL’

b.

RÉD - túlnik - \widehat{tj}	*COMPLEX	OCP	SWP_{RED}	MAX-V
a.  tútulnikif			*	
b. tútlnikif	*!			*

Developing the prefixing analysis II

- ▶ SWP_{RED} is dominated by inviolable phonotactic constraints *COMPLEX and OCP:

(27) *COMPLEX, OCP \gg SWP_{RED} \gg MAX-V

- ▶ Whenever these constraints would be violated, syncope is blocked and “light” reduplication occurs — (e.g.) by OCP in (28):

(28) a. tətʃin ‘grab’ : tətətʃin ‘be grabbing’

b.

RÉD - tətʃ - in	*COMPLEX	OCP	SWP_{RED}	MAX-V
a.  tətətʃin			*	
b. tətʃin		*!		*

Developing the prefixing analysis III

- ▶ SWP_{RED} is also dominated by violable CONTACT:

(29) *COMPLEX, OCP \gg DEP-V \gg CONTACT \gg SWP_{RED} \gg MAX-V

- ▶ CONTACT blocks syncope in (30), yielding “light” reduplication:

(30) a. páŋijf ‘new.SG’ : pápaŋijf ‘new.PL’

b.

RÉD - páŋ - t̃f̃	CONTACT	SWP_{RED}	MAX-V
a.  pápaŋijf		*	
b. pápŋijf	*!		*

Local summary: Prefixing reduplication in Cupeño

- ▶ The prefixing analysis offers an explanation for:
 - ▶ Default “heavy” reduplication — syncope driven by preference for stressed reduplicants to be heavy (SWP_{RED}).
 - ▶ “Light” reduplication — phonotactics (*COMPLEX, OCP, CONTACT) block syncope.
 - ▶ Reduplicant stress — the accented reduplicant (/RÉD/) preferentially attracts stress leftward, away from the base.

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 - ▶ Reduplicant stress — the accented reduplicant (/RÉD/) preferentially attracts stress leftward, away from the base.
- ▶ However...

Issues with the prefixing analysis?

- ▶ While the prefixing analysis *can* capture the data, it also has certain issues:
 - ▶ Greater faithfulness of input-reduplicant than input-base is theoretically unexpected and (at least) cross-linguistically uncommon (cf. Haynes 2007).
 - ▶ Requires additional assumptions to handle reduplication in long vowel roots (see Appendix II).
- How do infixing analys(es) compare?

Comparing the INFIXED-C analysis I

- ▶ The INFIXED-C analysis (Haynes 2007) assumes that:
 - ▶ The reduplicant is an empty-C slot, which copies from the left-edge of the base.
 - ▶ The reduplicant is infixated into the base after the initial CV.
 - ▶ “Light” reduplication involves copy epenthesis — an epenthetic vowel is inserted whose quality is determined by the preceding vowel (e.g. Kawahara 2007).
- ★ Epenthesis repairs phonotactic violations in reduplication due to *general* phonological constraints (i.e. is non-specific to reduplication).

Comparing the INFIXED-*C* analysis II

- ▶ The INFIXED-*C* analysis accounts for “heavy” reduplication — the *C* reduplicant is infixated after the initial *CV* of the base, making its first syllable heavy, e.g. (31):

(31) a. míxəl ‘custom’ : mímxəl ‘customs’

b.

	mí - C - xə - l	*COMPLEX	OCP	DEP-V
a.	 mímxəl			
b.	mími ^x əl			*!

The INFIXED-*C* analysis III

- ▶ The infix *C* analysis also handles *COMPLEX-driven “light” reduplication.
 - ▶ Recall that complex syllable margins are regularly repaired by epenthesis, i.e. (17):

(17) a. *COMPLEX ≫ DEP-V

b.

	wíw - tʃ̆	*COMPLEX	*DEP-V
a.	wíwʃ̆	*!	
b.	wíw-ɪʃ̆		*

Comparing the INFIXED-*C* analysis III

- ▶ The infixed *C* analysis also handles *COMPLEX-driven “light” reduplication.
 - ▶ The complex margin created by infixation is thus predictably repaired by epenthesis, e.g. (32):

(32) a. túlnikif ‘black.SG’ : tútulnikif ‘black.PL’

b.

	tú - C - lnik - \widehat{tj}	*COMPLEX	DEP-V
a.	tútlnikif	*!	
b.	 tútulnikif		*

Comparing the INFIXED-C analysis IV

- ▶ Yet the INFIXED-C encounters problems with CONTACT-driven “light” reduplication.
 - ▶ Recall that CONTACT violations are not ordinarily repaired outside of reduplication:

(18) a. DEP-V \gg CONTACT

b.

	púk - ηax	DEP-V	CONTACT
a.	 púkηax		*
b.	púk ⁱ ηax	*!	

Comparing the INFIXED-C analysis IV

- ▶ Yet the INFIXED-C encounters problems with CONTACT-driven “light” reduplication.
 - ▶ The independently established constraint ranking thus wrongly predicts “heavy” reduplication in (33):

(33) a. páŋiʃ ‘new.SG’ : pápaŋiʃ ‘new.PL’

b.

pá - C - ŋ - tʃ	*COMPLEX	DEP-V	CONTACT
a.  pápaŋiʃ			*
b.  pápaŋiʃ		*!	

Against the INFIXED-C analysis

- ▶ The INFIXED-C analysis cannot capture CONTACT-driven “light” reduplication because:
 - ▶ CONTACT is emergent only reduplication (a TETU effect; e.g. McCarthy and Prince 1994).
 - ▶ It cannot be derived by general constraints, which require DEP-V >> CONTACT

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 - ▶ CONTACT is emergent only reduplication (a TETU effect; e.g. McCarthy and Prince 1994).
 - ▶ It cannot be derived by general constraints, which require DEP-V ≫ CONTACT
- The INFIXED-*C* analysis cannot be maintained — but what about an alternative infixing analysis?

An alternative infixing analysis?

- ▶ Similar reduplicative patterns in Pima analyzed as infixing by Riggle (2006) (cf. Munro and Riggle 2004):
 - ▶ Reduplicant is infixes after initial *CV* of the base, copying from its left-edge.
 - ▶ Copying is preferentially minimal, thus *C* (enforced by (e.g.) *STRUC ≫ MAX-BR).
 - ▶ Extra copying occurs to avoid phonotactic violations.

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 - ▶ Copying is preferentially minimal, thus C (enforced by (e.g.) *STRUC >> MAX-BR).
 - ▶ Extra copying occurs to avoid phonotactic violations.
- ▶ This approach *could* capture CONTACT-driven “light” reduplication:
 - ▶ Does not rely on epenthesis to generate “light” reduplication.
 - ▶ CV-copying is derived as a TETU effect in the reduplicant (where it is expected).
 - An analysis is sketched in Appendix IV.

An alternative infixing analysis?

- ▶ But less clear whether the infixing analysis can explain stress in reduplication, which is:

- ▶ Assigned to the preceding syllable when the **reduplicant** is CV:

(34) páŋiʃ ‘new.SG’ : pápaŋiʃ ‘new.PL’

- ▶ Assigned to the same syllable when the **reduplicant** is C:

(35) a. míxəl ‘custom’ : mímxəl ‘customs’
 b. kaβáʔmal ‘olla’ : kákβaʔmal-im ‘ollas’

An alternative infixing analysis?

- ▶ But less clear whether the infixing analysis can explain stress in reduplication, which is:

- ▶ Assigned to the preceding syllable when the **reduplicant** is CV:

(36) páŋiʃ ‘new.SG’ : pápaŋiʃ ‘new.PL’

- ▶ Assigned to the same syllable when the **reduplicant** is C:

(37) a. míxəl ‘custom’ : mímxəl ‘customs’
b. kaβáʔmal ‘olla’ : kákβaʔmal-im ‘ollas’

- ▶ Further investigation is called for.

Conclusions & discussion

- So is it a prefix or an infix?

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Conclusions & discussion

- So is it a prefix or an infix?
 - ▶ Analyzing the Cupeño partial reduplicative morpheme as a prefix offers a viable account of the data.
 - ▶ The INFIXED-*C* analysis cannot account for all of the data.
 - ▶ But no clear evidence against an alternative infixing analysis.

Thank you!

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SWP in Cupan

- ▶ There is inner-Cupan evidence for SWP (historically) applying more broadly than in Cupeño.
- ▶ In Luiseño, stressed prefixes may induce syncope of 1σ of disyllabic roots:

		ABSL		POSS	
(38)	Lu.	tamá-t	‘mouth’	pó-t ^m a	‘3SG-mouth’
		ʂulá-t	‘claw’	pó-ʂ ^l a	‘his/her claw’
		qawí-ʃ	‘forehead’	pó-q ^w i	‘3SG-his/her forehead’

- ▶ Cupeño cognates have prefixal stress, but no syncope:

(39)	Cu.	pó-tama	‘his/her mouth’
		pú-ʂula	‘his/her mouth’
		pó-qəw	‘his/her forehead’

Reduplication in \bar{V} bases

- ▶ Long vowel (monosyllabic) bases show “light” reduplication (with short vowels in both reduplicant and base):

	ʔí:ŋo	‘Indian’	:	ʔíʔiŋo-ʔom	‘Indians’	(^x í:ʔ.)
(40)	kí:-mal	‘boy’	:	kíki-tam	‘boys’	(^x í:k.)
	pú:l	‘doctor’	:	púβul-im	‘doctors’	(^x ú:β.)

Analyzing reduplication in \bar{V} bases I

- ▶ Syncope candidates — (e.g.) (b) and (c) in (42) — are ruled out by a higher ranking constraint protecting long vowels, MAX- \bar{V} (cf. Gouskova 2003; McCarthy 2007):

(41) MAX- \bar{V} : An input long vowel has a correspondent in the output.

(42)

RÉD - ḡí:ḡo - m	MAX- \bar{V}	SWP _{RED}	MAX-V
a.  ḡíḡiḡoḡom		*	
b. ḡí:ḡoḡom	*!		*
c. ḡíḡoḡom	*!		

Analyzing reduplication in \bar{V} bases II

- ▶ Fully faithful $^x[\text{ʔí:ʔi}noʔom]$ — with \bar{V} in base and reduplicant — cannot surface due to the WSP (e.g. Prince 1990).

(43) WEIGHT-TO-STRESS PRINCIPLE (WSP): Heavy syllables are stressed.

- ▶ WSP drives shortening of unstressed long vowels in Cupeño — for instance, in the aspectual suffix $/-a:n/$:

(44) ʔíx-**a**n ‘do thus’ vs. kuʂ-á:n ‘take, pick up’

- ▶ Unstressed vowel shortening provides independent evidence for the ranking in (45):

(45) WSP \gg IDENT-IO[+long]

Analyzing reduplication in \bar{V} bases II

- ▶ Fully faithful $^x[\text{ʔí:ʔi} \text{no} \text{ʔom}]$ — with \bar{V} in base and reduplicant — cannot surface due to the WSP (e.g. Prince 1990).

- ▶ The ranking in (45) correctly selects (a) in (46):

(45) $\text{MAX-}\bar{V}, \text{WSP} \gg \text{IDENT-IO}[+\text{long}] \gg \text{SWP}_{\text{RED}} \gg \text{MAX-V}$

(46)

	RÉD - ʔí:ʔno - m	<i>MAX-\bar{V}</i>	<i>WSP</i>	<i>IDENT-IO[+long]</i>	<i>SWP_{RED}</i>	<i>MAX-V</i>
a. 	ʔíʔinoʔom			*	*	
b.	ʔí:ʔnoʔom	*!				*
c.	ʔíʔnoʔom	*!				*
d.	ʔí:ʔi [̄] noʔom		*!			

Analyzing reduplication in \bar{V} bases III

- ▶ High-ranked IDENT-BR[long] militates against “mismatch” candidate (e) in (47) with \bar{V} reduplicant.

(47)

	ʔi:ɲo - m	IDENT-BR[long]	MAX- \bar{V}	WSP	IDENT-IO[+long]	SWP _{RED}	MAX-V
a. 	ʔiʔiɲoʔom				*	*	
b.	ʔi:ʔɲoʔom		*!				*
c.	ʔiʔɲoʔom		*!				*
d.	ʔi:ʔi:ɲoʔom			*!			
e.	ʔi:ʔiɲoʔom	*!			*		

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

(48) λάwin ‘dig’ : λαλάwin ‘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

(49) (pə́-)təw '(he) sees'
 tə́win 'glance' : tətwin 'look around'

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

(50)	páqin	‘slap’	:	pápaqin	‘slap (of multiple subj.)’
	táxin	‘poke hole’	:	tátaxin	‘poke several holes’
	wákin	‘slice’	:	wéwəkin	‘cut up in slices’

Irregularities in reduplication I

- ▶ In a few cases the same verbal roots have reduplicated forms suffixed with /-a:n/, which instead show syncope, e.g. (51):

(51) tá-tx-an ‘poke’
wǎ-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 “light” reduplication:

	yámuk ^w if	‘naughty.SG’	:	yáyamuktʃam	‘naughty.PL’
(52)	séqəpiʃ	‘mushroom’	:	sésəqəpiʃ	‘mushrooms’
	həlúmal	‘old, ragged clothes.SG’	:	həlúlumal	‘old, ragged clothes.PL’

Toward an atemplatic infixing analysis

- ▶ In contrast to the INFIXED-*C* analysis, an atemplatic infixing analysis can account for “light/heavy” variation:

(53)

mí- RED - xə - l		*COMPLEX	OCP	CONTACT	*STRUC-σ	MAX-BR
a.	 mímxəl				**	****
b.	mímixəl				***!	***

Toward an atemplatic infixing analysis

- ▶ In contrast to the INFIXED-*C* analysis, an atemplatic infixing analysis can account for “light/heavy” variation:

(54)

	tú - RED - lnik - tʃ	*COMPLEX OCP	CONTACT	*STRUC-σ	MAX-BR
a.	tútlnikif	*!		***	*****
b.	tútulnikif			****	*****

Toward an atemplatic infixing analysis

- ▶ In contrast to the INFIXED-*C* analysis, an atemplatic infixing analysis can account for “light/heavy” variation — including CONTACT-driven “light” reduplication.

(55)

		*COMPLEX	OCP	CONTACT	*STRUC- σ	MAX-BR
	páŋ - tʃ					
a.	pápaŋiʃ			*!	**	***
b.	☞ pápaŋiʃ				***	**