

# On reduplication and stress in Cupeño

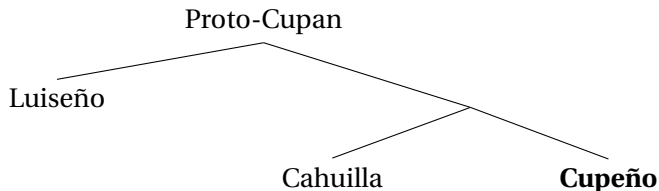
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# Language background

- ▶ 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).

# Reduplication in Cupeño

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

	píŋjin	‘knock’	:	pípiŋjin	‘knock several times’
(1)	páβəl	‘deer priest’	:	pápaβəl-im	‘deer priests-PL’
	páŋijf	‘new.SG’	:	pápaŋijf	‘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:**

hélʔijf ‘wide.SG’ : héhélʔijf ‘wide.PL’  
 páŋijf ‘new.SG’ : pápáŋijf ‘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. ʔawəlβə ‘grown-up.SG’ : ʔáʔwəlβə ‘grown-up.PL’

# 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:

hélʔijf ‘wide.SG’ : **héh**hélʔijf ‘wide.PL’

páŋijf ‘new.SG’ : **pá**páŋijf ‘new.PL’

## (3) C-copy reduplication:

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

b. ʔawólβə ‘grown-up.SG’ : **ʔá**ʔawólβə ‘grown-up.PL’

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- ▶ Neither fully accounts for reduplicant size variation (or initial stress).



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  - (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.

# Conditions on CV-copy reduplication I

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

	túlɲikif	‘black.SG’	:	tútulɲikif	‘black.PL’	( <sup>x</sup> tln)
	ʔáyʔaniʃ	‘big.SG’	:	ʔáʔayʔantʃ-am	‘big.PL’	( <sup>x</sup> ʔyʔ)
	súpləwi-t	‘one’	:	súsupləwət	‘each one’	( <sup>x</sup> spl)
(4)	kíʃ	‘house’	:	kíkíʃ	‘houses’	( <sup>x</sup> kʃ#)
	(pə́)-yax	‘(he) says’	:	yáyax	‘be saying’	( <sup>x</sup> yx#)
	(pú-)-kuʃ	‘(he) takes’	:	kúkuʃ	‘take repeatedly’	( <sup>x</sup> kʃ#)
	(pə-)-máx	‘(he) grinds’	:	mámáx	‘be grinding’	( <sup>x</sup> mx#)

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

## 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) tətʃin 'grab' : tətətʃin 'be grabbing' (<sup>x</sup>t.tʃ)  
 páβəl 'deer priest' : pápaβəl-im 'deer priests' (<sup>x</sup>p.β)

- (7) OCP<sub>PLACE/SON</sub>: 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 <sub>p</sub> .ŋ)  |
| ʔa-kúli | ‘ADJ-little.SG’ | : | ʔa-kúku <li>(-m)</li> <td>‘ADJ-little.PL’</td> <td>(x<sub>k</sub>.li)</td> | ‘ADJ-little.PL’       | (x <sub>k</sub> .li) |
| píŋin   | ‘knock’         | : | pípiŋin  | ‘knock several times’ | (x <sub>p</sub> .ŋ)  |
| tʃóŋin  | ‘kick’          | : | tʃátʃəŋin  | ‘be kicking’          | (x <sub>f</sub> .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  $1\sigma$  stress like (10) show C-copy reduplication:

	nát	‘chief’	:	nántam	‘chiefs’
	nít	‘pregnant woman’	:	níntam	‘pregnant women’
	(pá-)max	‘(he) gives’	:	mámmaxat	‘several things given’
(10)	ɲátin	‘cut with axe’	:	ɲánti	‘split wood’
	míxəl	‘custom’	:	mímmaxəl	‘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 C-copy reduplication I

- ▶ C-copy reduplication emerges whenever it would violate none of the above phonotactic constraints.

- ▶ Bases with  $2\sigma$  stress like (11) consistently show C-copy reduplication:

	waβáʃiʃ	‘long.SG’	:	wáwβaʃiʃ-am	‘long.PL’
	kaβáʔmal	‘olla’	:	kákβaʔmal-im	‘ollas’
(11)	naxán-itʃ	‘man’	:	nánaxatʃ-im	‘men’
	naxán-tʃuʔ-βel	‘old man’	:	nánaxa-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):

	ʔáyət	‘thief’	:	ʔáʔyət-im	‘thieves’
	ʔúnin	‘show’	:	ʔúʔnin	‘show repeatedly; teach’
(12)	ʔawəlvə	‘grown-up.SG’	:	ʔáʔwəlvə	‘grown-up.PL’
	ʔələlʔif	‘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.

# 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

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

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  - ▶ CONTACT-violating clusters permitted outside of reduplication.
    - ⇒ CV-copying captured as TETU effect under atemptatic infixing analysis.
    - ⇒ But problematic under INFIXED-C analysis (see below).



# Implementing the infixing analysis I

- ▶ Descriptively, reduplicative morpheme is:
  - ▶ Infixes 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).

# 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 reduplicant 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 - tʃ/	*COMPLEX	RM	RT-L	RED-L
a.	tú túlnikif			*!*	
b.	tú tú lnikif				**
c.	t túlnikif	*!			*
d.	túlnikif		*!		

- ▶ 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*)

# 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- $\sigma$ : Assign one violation per  $\sigma$  in the output. (cf. Zoll 1993, 1994)

(19) MAX-IO  $\gg$  \*STRUC- $\sigma$   $\gg$  MAX-BR

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

(20)

/RED, míxə - l/	MAX-IO	STRUC- $\sigma$	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- $\sigma$ :

(21) \*COMPLEX, OCP, CONTACT  $\gg$  \*STRUC- $\sigma$   $\gg$  MAX-BR

# Deriving the size of the reduplicant II

- ▶ Additional copying (CV) in reduplicant is driven by phonotactic constraints, which dominate \*STRUC- $\sigma$ :

(21) \*COMPLEX, OCP, CONTACT  $\gg$  \*STRUC- $\sigma$   $\gg$  MAX-BR

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

(22)

/´RED, túlnik - tʃ/		*COMPLEX	*STRUC- $\sigma$	MAX-BR
a.	tú <u>l</u> nikif	*!	***	*****
b.	tú <u>tu</u> lnikif		****	*****


# Deriving the size of the reduplicant III

- ▶ Additional copying (CV) in reduplicant is driven by phonotactic constraints, which dominate \*STRUC- $\sigma$ :

(21) \*COMPLEX, OCP, CONTACT  $\gg$  \*STRUC- $\sigma$   $\gg$  MAX-BR

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

(23)

/ 'RED, tətʃ - in/	OCP	*STRUC- $\sigma$	MAX-BR
a. tətʃin	*!	**	****
b.  tətʃin		***	***



# Deriving the size of the reduplicant IV

- ▶ Additional copying (CV) in reduplicant is driven by phonotactic constraints, which dominate \*STRUC- $\sigma$ :

(21) \*COMPLEX, OCP, CONTACT  $\gg$  \*STRUC- $\sigma$   $\gg$  MAX-BR

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

(24)

/´RED, páŋ - tʃ/	CONTACT	*STRUC- $\sigma$	MAX-BR
a. páŋtʃ	*!	**	***
b. pápaŋtʃ		***	**

# 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  $1\sigma$  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 - tʃ̃/ → mə́niqif 'mesquite beans' (ˀmə́niqif)  
 /kútap̃i - tʃ̃/ → kút̃ap̃if 'bow' (ˀkút̃piʃ)

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 $/k\acute{u}tapi - \widehat{tʃ}/ \rightarrow k\acute{u}tapif$  ‘bow’ ( ${}^Xk\acute{u}tapif$ )

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

# Comparing the INFIXED-C analysis I

- How does the INFIXED-C analysis (Haynes 2007) compare?
  - ▶ Reduplicant is similarly infixated 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 “absolute” suffix would produce a complex coda:


(27)

	/wíw - tʃ/	*COMPLEX	DEP-V
a.	wíwʃ	*!	
b.	wíw-ɪʃ		*

# Comparing the INFIXED-C analysis III

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


(28)

/C, túlnik - tʃ/	*COMPLEX	DEP-V
a. tú <b>l</b> nikif	*!	
b.  tú <b>u</b> lnikif		*

# 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.	púk <i>i</i> ŋax	*!	

## Against the INFIXED-C analysis II

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

(30)

	/C, páŋ - tʃ/	*COMPLEX	DEP-V	CONTACT
a.	 páŋŋiʃ			*
b.	 pápaŋiʃ		*!	

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

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  - ▶ Fixing it would require similarly problematic assumptions.
- ▶ Proposed atemptatic infixing account accounts for variation in the size of the reduplicant.
  - ▶ CONTACT-driven CV-copying arises as a TETU effect.

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  - ▶ Fixing it would require similarly problematic assumptions.
- ▶ Proposed atemptatic infixing account 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.	[ʂáwi-f]	‘bread-ABSL’		[kawí-f]	‘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)

# 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  $2\sigma$  lexical stress as in (3b).

## (2) CV-copy reduplication:

hélʔij ‘wide.SG’ : héhélʔij ‘wide.PL’

páŋij ‘new.SG’ : pápáŋij ‘new.PL’

## (3) C-copy reduplication:

a. míxəl ‘custom’ : mímxəl ‘customs’

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

- There are a few exceptions: [sáʔvit] : [sʌsáʔvit] ‘Mexican(s)”; [k<sup>w</sup>áw] ‘shout’ : [k<sup>w</sup>ak<sup>w</sup>áw] ‘call several times’, and several *-in*-class verbs (see Appendix II).

# Stress & reduplication II

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

	waβaʃiʃ	‘long.SG’	:	wáwβaʃiʃ-am	‘long.PL’
	kaβaʔmal	‘olla’	:	kákβaʔmal-im	‘ollas’
(32)	ʔəlaʔiʃ	‘bad, ugly.SG’	:	ʔáʔlaʔiʃ	‘bad, ugly.PL’
	ʔulá:n	‘sew’	:	ʔúʔla	‘sew’
	naxán-itʃ	‘man’	:	nánxatʃ-im	‘men’

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

# Stress & reduplication II

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

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- 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 infixated after the lexically accented root syllable to avoid this type of “stress shift.”

# Preaccentuation in Cupeño

- ▶ Cupeño has a set of PREACCENTING morphemes (marked ´-), which place a lexical accent on immediately preceding  $\sigma$ .
  - ▶ Stress attracted to preceding  $\sigma$  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 - muʃu - ´m/ → [pə-muʃú-m] '3SG-beard-PL'
- b. /háxa - ´ʔaw/ → [háxa-ʔaw] 'sand-LOC'  
 /ʔatáxa - ´m/ → [ʔatáxa-m] 'person-PL'

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	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)

# Preaccentuation in reduplication

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

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

- (34) a. /hÉ - ´RED - lʔ - tʃ/ → [hÉhɛlʔɪʃ] ‘wide.PL’  
 /tá - ´RED - tʃ - in/ → [tótətʃ-in] ‘be grabbing’
- b. /ʔa - ´RED - wólʋə/ → [ʔáʔwəlʋə] ‘grown-up.PL’  
 /ka - ´RED - βáʔmal - m/ → [kákβaʔmalim] ‘ollas-PL’

- ▶ Analyzing Cupeño partial reduplication as infixation explains:



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(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.

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- ▶ 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.



# 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.

## 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.

## 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.

# 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.



# Reduplication in $\bar{V}$ bases I

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

	ʔí:ɲo	‘Indian’	:	ʔíʔiɲo-ʔom	‘Indians’	( <sup>x</sup> í:ʔ.)
(35)	kí:mal	‘boy’	:	kíkí-tam	‘boys’	( <sup>x</sup> í:k.)
	pú:l	‘doctor’	:	púβul-im	‘doctors’	( <sup>x</sup> ú:β.)

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

# Reduplication in $\bar{V}$ bases II

- Why is attested [ʔíʔiŋo-ʔom] preferred to (e.g.) <sup>x</sup>[ʔí:ʔiŋo-ʔom]?

# Reduplication in $\bar{V}$ bases II

- Why is attested  $[\text{ʔíʔiŋo-ʔom}]$  preferred to (e.g.)  $^x[\text{ʔí:ʔiŋo-ʔom}]$ ?
- ▶ Infixation of **reduplicant** after  $\bar{V}$  is ruled out by:

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- ▶ 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  $\omega$  (cf. Haynes 2007).

# Reduplication in $\bar{V}$ bases II

- Why is attested  $[\gamma'í\gamma'ino-\gamma'om]$  preferred to (e.g.)  $^x[\gamma'í:\gamma'ino-\gamma'om]$ ?
- ▶ 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  $\omega$  (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- $\mu$ ) 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) λάwin ‘dig’ : λαλάwin ‘dig repeatedly’

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

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(38)	páqin	‘slap’	:	pápaqin	‘slap (of multiple subj.)’
	táxin	‘poke hole’	:	tátaxin	‘poke several holes’
	wákin	‘slice’	:	wəwəkin	‘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. (39):

(39) tá-tx-an ‘poke’  
wó-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:

	yámuk <sup>w</sup> ij	‘naughty.SG’	:	yáyamuktjam	‘naughty.PL’
(40)	séqəpiʃ	‘mushroom’	:	sésəqəpiʃ	‘mushrooms’
	həlúmal	‘old, ragged clothes.SG’	:	həlúlumal	‘old, ragged clothes.PL’