Prosodic Misapplication in Copy Epenthesis and Reduplication[*]

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1   Introduction

Question of analysis: In patterns of copy epenthesis, as illustrated in (1), what ensures that copy vowels and their hosts share a featural resemblance?

(1) Copy epenthesis
   a.   /bri/ → [b<u>i</u>ri]
   b.   /bro/ → [b<u>o</u>ro]
   c.   /bra/ → [b<u>a</u>ra]

There have been a number of answers to this question proposed in the literature, including *featural spreading* (e.g. Clements 1987, 1991, Gafos & Lombardi 1999, Halle et al. 2000, Shademan 2002, Kawahara 2007) and *gestural realignment* (Steriade 1990, Hall 2003).

We will focus mainly on an approach based on ***correspondence*** (Kitto & de Lacy 1999, Yu 2005, Kim 2008; contra Kawahara 2007):
- Copy vowels and their hosts stand in correspondence with one another.
- Faithfulness constraints act on the copy-host pair, yielding featural identity.

> **We argue that *correspondence* is a necessary component of the analysis of copy epenthesis.**

The basis of our argument: A class of effects in which the featural resemblance between copy vowels extends to *prosodic/suprasegmental* resemblance, resulting in misapplication of the assignment of properties like stress, pitch, and length.
- These effects follow only from a correspondence-based analysis.

Beyond copy epenthesis: If copy epenthesis involves a correspondence relation, then, as suggested by Kitto & de Lacy 1999, we might expect to see similarities between copy epenthesis and reduplication, which is often believed to involve a correspondence relation (McCarthy & Prince 1995).
- We show that reduplication displays the same sorts of prosodic misapplication effects as copy epenthesis, especially relating to stress and stress degree. These effects are easily analyzed within a BR-correspondence approach to reduplication.
- Based in part on this empirical and analytical overlap, we argue that the processes share a similar representational structure, and that this structure is the ultimate source of the correspondence relations.

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2   Prosodic misapplication in copy epenthesis

In this section, we describe and analyze two cases of prosodic misapplication in copy epenthesis.
- In **Scottish Gaelic** (Bosch & de Jong 1997, Hall 2003, Hammond et al. 2014), we find evidence from both categorical and gradient phenomena that copy vowels and their hosts must match in length.
- In **Ho-Chunk** (formerly Winnebago; Miner 1979 et seq., Hale & White Eagle 1980, Halle & Vergnaud 1987, Alderete 1995, Hayes 1995, Hall 2003, among others), the location of prominence depends on the presence and location of an epenthetic copy vowel.
- ❖ **Selayarese** (Mithun & Basri 1986, Piggott 1995, Alderete 1999, Kitto & de Lacy 1999, Broselow 2001; Stanton & Zukoff 2015) displays similar properties; see Appendix.

The goal of this section: To show that positing a correspondence relation between copy vowels and their hosts allows for a natural and unified analysis of these cases.

2.1   Length-matching in Scottish Gaelic

- In Scottish Gaelic, heterorganic falling sonority clusters are broken up by epenthesis.
- The epenthetic vowel is always identical to the preceding vowel (*modulo* effects of palatal-agreement).

(2) Copy epenthesis in Scottish Gaelic (Bosch & de Jong 1997:1-2) (epenthetic segment is underlined)
  a. /arm/   >   [ar<u>a</u>m]   'army'   d. /dɔrxɔ/   >   [dɔr<u>ɔ</u>xɔ]   'dark'
  b. /ʃalv/   >   [ʃal<u>a</u>v]   'prosperity'   e. /tʰʲilʲkʲəɣ/   >   [tʰʲilʲ<u>i</u>kʲəɣ]   'to throw'
  c. /urxirʲ/ >   [ur<u>u</u>xirʲ] 'shot'

- The pattern in (2) is diagnostic of **copy epenthesis**, distinct from **default epenthesis**.
- We argue that default and copy epenthesis have distinct phonological representations:
  - Default epenthesis inserts material that has no relation to the underlying form.
    - We take this to violate DEP (or DEP[feature]).
  - Copy epenthesis, on the other hand, takes material that is present elsewhere in the underlying representation and causes it to additionally surface outside of its underlying location.
    - We take this to violate INTEGRITY (among others), but *not* DEP.[1]

(3) Constraints for copy epenthesis
  a. *BADCLUSTER: Cover constraint for whatever forces epenthesis.
  b. INTEGRITY-IO: Assign one violation mark * for each input segment which stands in correspondence with multiple output segments.
  c. DEP-IO: Assign one violation mark * for each output segment w/o an input correspondent.

(4) Ranking for copy epenthesis: *BADCLUSTER, DEP-IO » INTEGRITY-IO

(5) Copy epenthesis with short host vowels: /arm/ → [aram] (ex. ((2)a))

/arm/	DEP-IO	*BADCLUSTER	INTEGRITY-IO
a. arm		*!	
b. ☞ a$_x$r$\underline{a}_x$m			*
c. arəm	*!		

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[1] It is likely that some variety of DEP is violated in copy epenthesis, as in default epenthesis – perhaps DEP-*timing slot*.

- ➢ *Notice*: All forms that display copy epenthesis (as in (2)) have a *short* host vowel.
- When the cluster-type targeted by copy epenthesis occurs after a long vowel (or diphthong), however, copy epenthesis is **blocked,** and the cluster is not repaired, as shown in (6).

(6) <u>Copy epenthesis blocked if host vowel is long (Hammond et al. 2014: 126)</u>
  - a. /mi:rvəlʲəx/ > [mi:rvəlʲəx], not *[mi:ri̯vəlʲəx] or *[mi:ri̱:vəlʲəx] 'marvelous'
  - b. /du͡əlxəs/ > [du͡əlxəs], not *[du͡ələ̯xəs] or *[du͡əlu͡əxəs] 'tradition'
  - c. /ni͡alvər/ > [ni͡alvər], not *[ni͡ala̯vər] or *[ni͡ali͡avər] 'cloudy'
  - d. /i:rmɛltʃ/ > [i:rmɛltʃ], not *[i:ri̯mɛltʃ] or *[i:ri̱:mɛltʃ] 'firmament'

- We argue that copying of long vowels is prevented by the interaction of:
  - ○ (i) A desire for copy and host vowels to be *identical in length* (constraint (7)a), and
  - ○ (ii) A more general dispreference for long vowels (constraint (7)b).

(7) <u>Length constraints for blocking in Scottish Gaelic</u>
  - a. **IDENT[length]-CH (Copy-Host)**: Assign one violation mark * for each copy-host pair that mismatches in length (i.e. /v/↔[v:] or /v:/↔[v]).
  - b. ***LONGVOWEL:** Assign one violation mark * for each output long vowel ([v:]).

- When both of these constraints dominate *BADCLUSTER, epenthesis with a long host is impossible.[2]

(8) <u>Copy epenthesis blocked with long host vowels</u>: /i:rmɛltʃ/ → [i:rmɛltʃ] (ex. (6)d)

/i:rmɛltʃ/	IDENT[length]-CH	*LONGVOWEL	*BADCLUSTER	INTEGRITY-IO
a. ☞ i:rmɛltʃ		*	*	
b. i:ₓri:ₓmɛltʃ		**!		*
c. i:ₓri̱ₓmɛltʃ	*!	*		*

- A candidate *[iₓri̱ₓmɛltʃ], where the host vowel shortens, is ruled out by an undominated IO faithfulness constraint against vowel shortening.

- ❖ The idea that copy-host pairs must match in duration receives further support from a *sub-categorical* effect of **length matching** that occurs when copy epenthesis does apply:
- ➢ *Copy-Host pairs match each other with respect to duration* (Bosch & de Jong 1997).

- In normal (C)VCV(...) words (left, in (9) below), where V2 *isn't* epenthetic, V1 is longer than V2.
  - ○ V1 bears stress, and is (sub-phonemically) lengthened as a cue to that prominence.
- But in words with copy epenthesis (right, in (9) below), V1 and V2 are about equal.

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[2] Default epenthesis remains unavailable based on the ranking DEP-IO » *BADCLUSTER, as is shown in (8). We will not address why copy epenthesis could not occur from the vowel on the other side of the cluster.

(9) <u>Phonetic length in non-epenthetic (left) vs. epenthetic sequences (right)</u> (Bosch & de Jong: pp. 5-6)
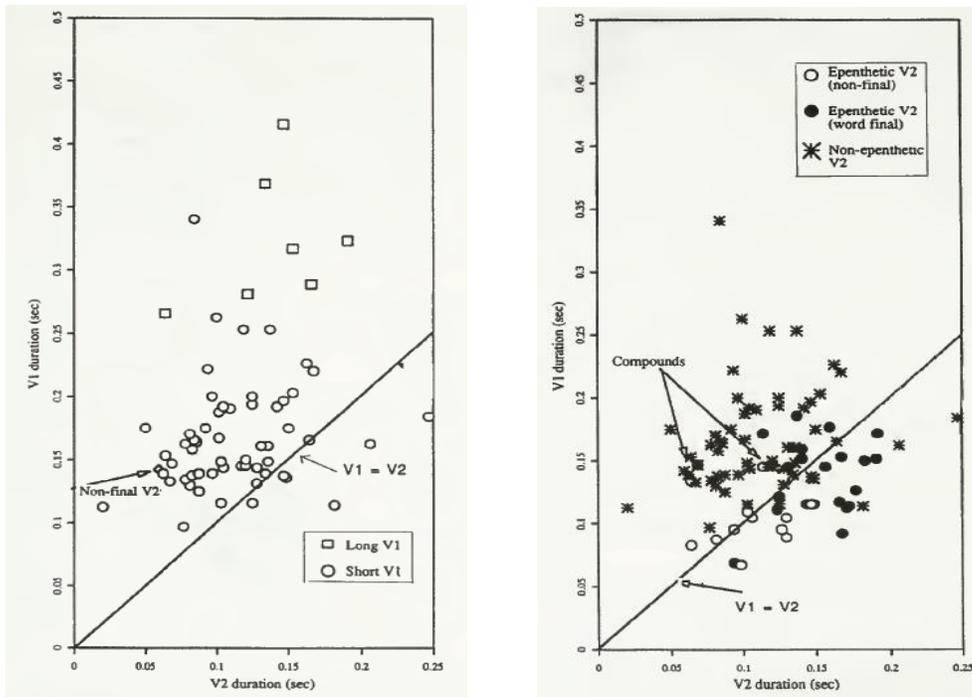
❖ **What's going on here:**
  o V2 is *longer* in the epenthetic context than the non-epenthetic context, and V1 is *shorter* in the epenthetic than in the non-epenthetic context.
  o *Result*: V1 and V2 are durationally equivalent **only when the sequence is a copy-host pair**.
  o This duration is intermediate between an unstressed short vowel and a stressed short vowel.

<u>Outline of analysis</u>: We assert that vowels in Scottish Gaelic belong to one of the four durational categories in (10).

(10) <u>Vowel durations in Scottish Gaelic</u>

Duration values	1x	1.25x	1.5x	2x
Vowel types	Short unstressed V	Copy and Host vowels	Short stressed V (always initial)	Long V

- Short vowels, which normally have a duration of **1x**, are lengthened to a duration of **1.5x** under stress (due to a variety of STRESS-TO-WEIGHT).
- When the initial vowel is a *host*, if this lengthening occurred as normal, IDENT[length]-CH would call for its *copy* (in the second syllable) to also have a duration of **1.5x**.
- **But**, we claim, stressless short vowels are not permitted to lengthen to **1.5x**. A copy vowel in second position is not stressed; therefore, it is not permitted to be **1.5x**.
- Because IDENT[length]-CH is undominated, the durational value **1.5x** cannot surface in *either position*.
- Based on additional fine-grained conditions on the durational values permitted for short vowels in stressed and unstressed syllables, and the identity requirement imposed by IDENT[length]-CH, the optimal candidate is one which lengthens both vowels to **1.25x**.

Note: Copy-host pairs resemble each other in pitch, as well as duration (Bosch & de Jong 1997).

- This supports our proposal that segments standing in correspondence can be subject to Faithfulness (IDENT) constraints demanding identity for *any prosodic property*. Whether they have an effect in a given language is a matter of ranking.

❖ *In sum*: In Scottish Gaelic, copy epenthesis interacts with length in two otherwise unexpected ways.
   - o   Whether or not copy epenthesis applies depends on the length of the host vowel.
   - o   A desire for fine-grained durational identity between copy vowels and their hosts causes both stressed and unstressed vowels to deviate from their normal durational targets.

➢ Both effects can be captured with a single constraint that enforces durational identity between copy and host, IDENT[length]-CH. This analysis is only possible if copy-host pairs stand in correspondence.

2.2   Dorsey's Law in Ho-Chunk

- Ho-Chunk (Winnebago) has a process of copy epenthesis commonly known as *Dorsey's Law*.
- The existence of a Dorsey's Law sequence (copy-host pair) often causes stress to misapply, though in complex and descriptively non-uniform ways (see references at the beginning of the section).

➢ *This subsection*: Misapplication of stress in Dorsey's Law (DL) words results from a drive for identity in stress between copy vowels and their hosts.
   - o   Given an amendment to the interpretation of the data (motivated by early sources and acoustic evidence), the complicated stress facts receive a simple analysis based on CH-correspondence.
   - o   We show that the CH-correspondence approach extends beyond stress to explain unexpected patterns of vowel duration and nasalization.

### 2.2.1   *Copy epenthesis and misapplication of stress*

- In Ho-Chunk, *voiceless obstruent + sonorant* clusters are broken up by epenthetic copy vowels. As shown in in (11)a,b, DL words often bear a different stress pattern than their non-DL counterparts.

(11) <u>Two syllable words, with and without Dorsey's Law</u>

	DL words				cf. *Non-DL words*		
a.	/kre/	→	[kéré]	'to leave'	c.	/hiwãx/	→	[hiwấx]	'to ask'
b.	/sreʧ/	→	[séréʧ]	'long'	d.	/waruʧ/	→	[warúʧ]	'to eat'
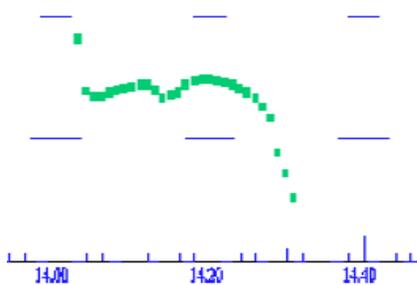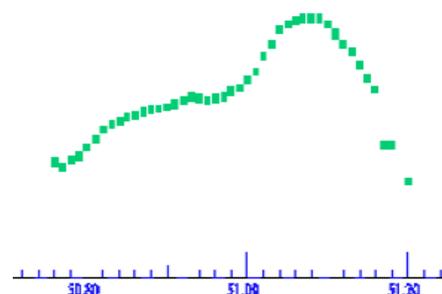
(Hall 2003:173)   (Hall 2003:172)

NOTE: We assume that, when one member of a DL sequence bears stress, so does the other
- This is supported by evidence from pitch tracking (Hall 2003): in DL sequences (above, left), unlike other CVCV sequences (above, right), both vowels bear high pitch.
- Further evidence for this view comes from descriptions in the early sources; see the Appendix.

- As summarized in (12), whether or not (and how) DL sequences influence the assignment of stress depends on their position within the word, as well as the word's length.
  - o We abstract away from effects involving syllable weight, and focus just on light syllables in the following discussion of stress.
- We will first focus on patterns of stress assignment in four-syllable words, extracted in (13).

(12) <u>Stress in DL vs. non-DL words</u>[3]

Word shape	Non-epenthetic word	Dorsey's Law word (DL sequence(s) in [ ])	
$\sigma_1\sigma_2$	$\sigma_1\acute{\sigma_2}$ ex. *hiwǎx* 'to ask'	$[\acute{\sigma_1}\acute{\sigma_2}]$ ex. *[kéré]*	(← /**kr**e/) 'to leave returning'
$\sigma_1\sigma_2\sigma_3$	$\sigma_1\sigma_2\acute{\sigma_3}$ ex. *hipirák* 'belt'	$[\sigma_1\sigma_2]\acute{\sigma_3}$ ex. *[xere]hí*	(← /**xr**ehi/) 'to boil'
		$\sigma_1[\acute{\sigma_2}\acute{\sigma_3}]$ ex. *hi[pérés]*	(← /hi**pr**es/) 'to know'
$\sigma_1\sigma_2\sigma_3\sigma_4$	$\sigma_1\sigma_2\acute{\sigma_3}\sigma_4$ ex. *hiǰowíre* 'fall in'	$[\sigma_1\sigma_2]\acute{\sigma_3}\sigma_4$ ex. *[xoro]ǰíke*	(← /**xr**oǰike/) 'hollow'
		$\sigma_1[\sigma_2\sigma_3]\acute{\sigma_4}$ ex. *hi[koro]hó*	(← /hi**kr**oho/) 'to prepare'
		$\sigma_1\sigma_2[\acute{\sigma_3}\acute{\sigma_4}]$ ex. *hiru[pį̃ní̃]*	(← /hiru**pn**i/) 'to twist'
		$[\sigma_1\sigma_2][\acute{\sigma_3}\acute{\sigma_4}]$ ex. *[kere][pǎnǎ]*	(← /**kr**epna/) 'unit of ten'
$\sigma_1\sigma_2\sigma_3\sigma_4\sigma_5$	$\sigma_1\sigma_2\acute{\sigma_3}\sigma_4\sigma_5$ ex. *hokiwároke* 'swing'	$\sigma_1[\sigma_2\sigma_3][\acute{\sigma_4}\acute{\sigma_5}]$ ex. *wa[kiri][párás]*	(← /wa**kripr**as/) 'flat insect'

(13) <u>Stress in 4σ words</u>

	Word type	Stress pattern	Example	Stress application type	
a.	Non-DL word	$\sigma_1\sigma_2\acute{\sigma_3}\sigma_4$	*hiǰowíre*	Normal application:	Stress on σ_3
b.	DL in $[\sigma_1\sigma_2]$	$[\sigma_1\sigma_2]\acute{\sigma_3}\sigma_4$	*[xoro]ǰíke*	Normal application:	Stress on σ_3
c.	DL in $[\sigma_2\sigma_3]$	$\sigma_1[\sigma_2\sigma_3]\acute{\sigma_4}$	*hi[koro]hó*	Misapplication:	**Stress on σ_4**
d.	DL in $[\sigma_3\sigma_4]$	$\sigma_1\sigma_2[\acute{\sigma_3}\acute{\sigma_4}]$	*hiru[pį̃ní̃]*	Misapplication:	**Stress on σ_3 & σ_4**

- ❖ We will first model the analysis of the normal application pattern, and then show that both types of misapplication occur to satisfy undominated IDENT[stress]-CH.

2.2.2   *Stress in four syllable words*

- From (13)a *hiǰowíre*, we can see that stress prefers to fall on the third syllable ($\sigma_1\sigma_2\acute{\sigma_3}\sigma_4$).
- This pattern can be described with the constraints in (14), which are illustrated in (15) and (19).

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[3] All data in this section come from Miner 1989 – except for *hiǰowíre* and *hokiwároke* in (12), which are from Miner 1979. Note also that *hokiwároke* is transcribed with a final secondary stress; we omit secondary stresses here.

(14) Constraints for post-peninitial stress (following Gordon 2002):
   a. **NONINITIALITY**: One * if stress falls on first syllable of the word. (See Garrett 1999)
   b. **EXTENDEDNONINITIALITY**: One * if stress falls on one of the first two syllables of the word.
   c. *EXTENDEDLAPSEL: One * if no stress falls within the first three syllables of the word.

(15) 3rd syllable (post-peninitial) stress in 3+ syllable words

/hiǰowire/	NONINITIALITY	EXTNONINITIALITY	*EXTLAPSEL
a. híǰowire	*!	*	
b. hiǰówire		*!	
c. ☞ hiǰowíre			
d. hiǰowiré			*!

- In (13), two shapes of 4σ words do not display default 3rd-syllable stress (σ₁[σ₂σ₃]σ́₄, σ₁σ₂[σ́₃σ́₄]).
- ➢ We argue that both of these patterns, and all of the other divergent patterns in (12), result from the operation of a constraint demanding stress identity between copy and host vowels:

(16) **IDENT[stress]-CH**:
   Assign one violation * for each copy-host pair that does not have identical values for stress (i.e. if [stressed]↔[unstressed] or [unstressed]↔[stressed]).

- The two different misapplication patterns in (13) occur because there are two ways to satisfy (16):
   o Stress *neither* the copy nor the host – *hi*[*koro*]*hó* ((13)c)
   o Stress *both* the copy and the host – *hiru*[*pįnį́*] ((13)d)
- These misapplication strategies are required in words of these shapes because a DL vowel is in the position targeted for default stress assignment (σ₃).
   o Because IDENT[stress]-CH is undominated, applying normal σ₃ stress would trigger the need for stress on the other member of the DL sequence, as well.
- Which misapplication pattern is observed is determined by the position of the other member of the DL sequence, and whether or not the metrical constraints allow that position to bear a stress.

The first strategy: Satisfy IDENT[stress]-CH by stressing **neither** DL vowel – *hi*[*koro*]*hó* (σ₁[σ₂σ₃]σ́₄).

- If stress applied normally (to σ₃ alone), IDENT[stress]-CH would be fatally violated (candidate (17)a).
- If stress remained on σ₃, IDENT[stress]-CH could be satisfied by additionally stressing σ₂ ((17)b); but this incurs a violation of EXTNONINITIALITY (and *CLASH,[4] but EXTNONINIT » *CLASH; see below).
- As long as EXTNONINITIALITY dominates *EXTLAPSEL, pushing stress off of the entire sequence onto σ₄ (candidate (17)c) emerges as the optimal strategy.

(17) Misapplication: 4th syllable stress with DL in [σ₂σ₃] (*hi*[*kuru*]*ní* 'tangled')

/hikruni/	IDENT[stress]-CH	EXTNONINITIALITY	*CLASH	*EXTLAPSEL
a. hiku$_x$rú$_x$ni	*!			
b. hikú$_x$rú$_x$ni		*!	*	
c. ☞ hiku$_x$ru$_x$ní				*

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[4] In Ho-Chunk, pitch is the primary (if not only) cue to stress (see Miner 1989, Hall 2003), so what we call *CLASH could just as well be defined as a constraint dispreferring high pitch plateaus.

The second strategy: Satisfy IDENT[stress]-CH by stressing **both** DL vowels – *hiru*[*pįnį*] ($\sigma_1\sigma_2[\acute{\sigma_3}\acute{\sigma_4}]$).[5]

- If stress applied normally (to σ_3 alone), IDENT[stress]-CH would be fatally violated (candidate (18)a).
- Stressing the other DL vowel to satisfy IDENT[stress]-CH places the additional stress on σ_4 (candidate (18)c); this violates *CLASH, but no other metrical constraints.
- If instead we tried to satisfy IDENT[stress]-CH by moving stress off the DL sequence entirely, this would place stress on σ_2 (candidate (18)b), incurring a violation of EXTNONINITIALITY.
- The option in (18)b is dispreferred because EXTNONINITIALITY » *CLASH; candidate (18)c, the desired winner, is therefore optimal.

(18) Misapplication: 3rd & 4th syllable stress with DL in [$\sigma_3\sigma_4$] (*hiru*[*pįnį*] 'to twist')

/hirupni/	IDENT[stress]-CH	EXTNONINITIALITY	*CLASH	*EXTLAPSEL
a. hirupį̃$_x$nĩ$_x$	*!			
b. hirúpĩ$_x$nĩ$_x$		*!		
c. ☞ hirupį̃$_x$nį̃$_x$			*	

➢ The two types of misapplication we observe in four syllable words share a common cause:
  o IDENT[stress]-CH must always be satisfied, even at the expense of *EXTLAPSEL (as in (17)) and *CLASH (as in (18)).
  o EXTNONINITIALITY must be satisfied when possible (except, as demonstrated below, when it comes into conflict with IDENT[stress]-CH).

2.2.3   Stress in other word shapes (will be skipped due to time)

➢ The other patterns found in (12) are consistent with the rankings demonstrated in four syllable words, and in addition reveal several others.

- In two syllable words without a DL sequence, stress applies to the second syllable: *hiwáx*.
- This follows from any ranking of the metrical constraints:

(19) 2nd syllable (peninitial) stress in 2 syllable words

/hiwãx/	NONINITIALITY	EXTNONINITIALITY	*EXTLAPSEL
a. híwãx	*!	*	
b. ☞ hiwáx		*	

- In two syllable words that *do* consist (entirely) of a DL sequence, both vowels are stressed: [*kéré*].
- This double-stress pattern violates both NONINITIALITY and *CLASH (and also EXTNONINITIALITY), and can only be explained if IDENT[stress]-CH outranks these constraints.[6]

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[5] The same strategy applies in words where both $\sigma_1\sigma_2$ and $\sigma_3\sigma_4$ consist of DL sequences: [*kẹre*][*pã̃nã̃*]. This follows from the rankings proposed.

[6] To ensure that some stress surfaces in *kéré* (as opposed to the alternative *kere*, where there are no stresses), we also assume that ONESTRESS/CULMINATIVITY(MIN) is undominated, i.e. that all Ho-Chunk words must have some stress.

(20) 1st & 2nd syllable stress in 2σ DL-only words ([*kéré*] 'to leave returning')

/kre/	IDENT[stress]-CH	NONINITIALITY	*CLASH
a. ☞ ké$_x$ré$_x$		*	*
b. ké$_x$re$_x$	*!	*	
c. ke$_x$ré$_x$	*!		

- Three syllable words where σ₂σ₃ comprise a DL sequence reveal that NONINITIALITY » *CLASH.

(21) 2nd & 3rd syllable stress in 3σ words with DL in [σ₂σ₃] (*hi*[*pérés*] 'to know')

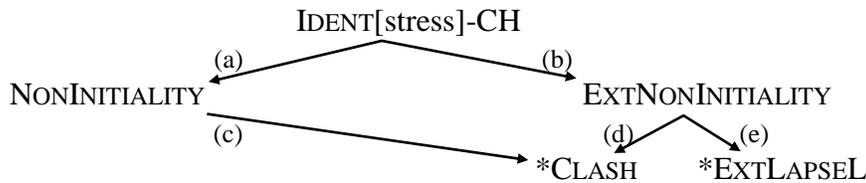| /hipres/	IDENT[stress]-CH	NONINITIALITY	*CLASH
a. ☞ hipé$_x$ré$_x$s			*
b. hípe$_x$re$_x$s		*!	
c. hipe$_x$ré$_x$s	*!		

- When a 4+ syllable word contains two DL sequences, the fact that stress targets the second DL sequence follows from the rankings established above.

(22) 4th & 5th syllable stress in 5σ words with DL in [σ₂σ₃] & [σ₄σ₅] (*wa*[*kiri*][*párás*] 'flat insect')

/wakripras/	IDENT[stress]-CH	EXTNONINITIALITY	*CLASH	*EXTLAPSEL
a. ☞ waki$_x$ri$_x$pá$_y$rá$_y$s			*	*
b. wakí$_x$rí$_x$pa$_y$ra$_y$s		*!	*	
c. waki$_x$rí$_x$pa$_y$ra$_y$s	*!			
d. waki$_x$ri$_x$pá$_y$ra$_y$s	*!			*
e. wáki$_x$ri$_x$pa$_y$ra$_y$s		*!		

- A ranking summary of the analysis is shown in (23):

(23) Stress rankings (annotated with ranking arguments; transitive arguments omitted)

IDENT[stress]-CH
(a) NONINITIALITY (b) EXTNONINITIALITY
(c) *CLASH (d) (e) *EXTLAPSEL

(a) [ké$_x$ré$_x$] > *[ke$_x$ré$_x$]   (c) [hipé$_x$ré$_x$s] > *[hípe$_x$re$_x$s]   (e) [hiku$_x$ru$_x$ní] > *[híkú$_x$rú$_x$ni]
(b) [hipé$_x$ré$_x$s] > * [hipe$_x$ré$_x$s]   (d) [hirupí$_x$ní$_x$] > *[hirúpi$_x$ni$_x$]

2.2.4   Other evidence for CH-faithfulness in Ho-Chunk: vowel-length and nasalization

- In addition to stress, the behavior of vowel length/duration gives additional indication that copy vowels and their hosts must be identical in (all?) derived, i.e. predictable, features.
- Authors have noted that both vowels in the DL sequence are **overly short**.
    - o   Susman (1943:9-10): "...[DL sequences] can be identified [...] usually by the fact that the vowels are very short."
    - o   Miner (1979:26): "the sequences are spoken [...] faster than other CVCV sequences."
- ➢   **Our interpretation**: *Back-copying*.
    - o   Ho-Chunk requires epenthetic copy vowels to be very short (on this see Steriade 2001).
    - o   Host vowels become overly short in order to match their copy.
    - o   This is back-copying of sub-categorical length (i.e. shortness) induced by CH-correspondence.
- ❖   This pattern is similar to the sub-categorical duration matching in Scottish Gaelic (§2.1): in both cases, restrictions on the length of the copy vowel cause the length of the host vowel to be altered as well.

- IDENT-CH effects can also be seen for vowel nasality in Ho-Chunk (see e.g. Miner 1989):
    - o   Vowel nasality is neutralized (to [+nas]) after nasal consonants.
    - o   In /CNV/ input that undergo Dorsey's Law, both the host vowel and the copy are invariably [+nas] ([CṼNṼ]) even though only the host vowel follows a nasal consonant.
    - o   The host's predictable nasality is transferred to the copy; this is *overapplication*.

- ➢   These effects, taken together with the robust stress misapplication patterns, provide significant support for copy-host correspondence in Ho-Chunk.

2.3   Discussion

To recap: We have shown that positing a correspondence relation between copy vowels and their hosts allows for a natural, unified treatment of prosodic misapplication effects in copy epenthesis.

Question: Could an analysis without correspondence do the same? (cf. discussion/references in §1)
- A *featural spreading*-only approach has difficulty accounting for the cases where prosodic properties of the copy vowel are transferred to the host (length in Scottish Gaelic and Ho-Chunk).
- While Hall's (2003) *gestural realignment* account has an analysis of many of these facts, the identity between copy and host vowels is accidental, and each dimension of identity must be derived separately. Under a correspondence-based analysis, identity is the goal.
- Previous analyses focusing on stress misapplication in Ho-Chunk (e.g. Halle & Vergnaud 1987, Alderete 1995, Hayes 1995) likewise do not account for the more general observation that copy-host pairs strive for agreement in *all prosodic properties*.
- ➢   Correspondence easily covers the full range of facts.

3   Prosodic correspondence in reduplication

- We have shown that IDENT constraints, when operative over the Copy-Host (CH) relation, can induce misapplication effects in the assignment of prominence in systems that license copy epenthesis.
- In this section, we will demonstrate that these same faithfulness constraints, when operative over the Base-Reduplicant (BR) correspondence relation (McCarthy & Prince 1995), induce equivalent patterns in reduplicative constructions.

- We will illustrate two types of reduplicative *stress matching* effects:
  - o Placement of additional stresses (Ngan'gityemerri verbal reduplication)
  - o Matching of stress degree (Ngan'gityemerri nominal reduplication, Diyari, Indonesian)

3.1 Ngan'gityemerri verbal reduplication: extra stresses

- In Ngan'gityemerri (Reid 2011), serial ("complex") verbs are composed of an auxiliary stem (light verb + agreement affixes) plus a verbal stem (lexical verb + valence/aspect affixes):

(24) <u>Ngan'gityemerri complex verb</u>: $[\,[\acute{\sigma}\,\sigma\,\ldots]$ AUX STEM $= [\grave{\sigma}\,\sigma\,\ldots]$ VERBAL STEM $]$"COMPLEX" VERB

- In the normal case, such a word has two and *only* two stresses:
  - o A primary stress on the leftmost syllable of the auxiliary stem, and
  - o A secondary stress on the leftmost syllable of the verbal stem.

(25) <u>Basic stress in the complex verb (examples from Reid: pp. 97-98)</u>
  - a. yé-nim=mì-wap-nyine   'She's married now'
  - b. wárra-ngiti=fì-pal-endi-pe   'They'll come back for me later'

- This pattern can be described with the constraints in (26), ranked as in (27).

(26) <u>Constraints for Ngan'gityemerri verbal stress</u>
  - a. **STRESSL-STEM**
    Assign one violation mark * for each stem (i.e. auxiliary stem and verbal stem) whose leftmost syllable does not bear a stress.
  - b. **ONESTRESS(complex verb)** (≈ Culminativity, Prince 1983)
    The complex verb (i.e. the word comprised of auxiliary stem and verbal stem) should have exactly one stress. Assign one violation * for each additional stress in the complex verb.

(27) <u>Ranking</u>: STRESSL-STEM » ONESTRESS(complex verb)

- There is only one case in which additional stresses arise: when the syllable at the left edge of the verbal stem is standing in BR-correspondence with another syllable (reduplicants are always monosyllabic).
  - o When this occurs, the other syllable involved in this BR-correspondence *also bears a stress*:

(28) <u>Additional stresses under BR-correspondence</u> (red. is underlined, base + red. in { })
  - a. wí-rr-ing-gu={dà-<u>dà</u>}   'They (dual) are singing'   (p.97, ex. 1-114b)
  - b. ngí-ni={<u>kù</u>-kùluk}-tye   'I was coughing'   (p.98, ex. 2-117)
  - c. yé-mi-ngiti={<u>fì</u>-fìtyi}-pagu-pe   'Roll me some (smokes)!'   (p.98, ex. 2-118)
  - d. ngúdum={bàt-<u>bìt</u>}   '...and knocked it to the ground.' (p.99, ex. 2-121)
  - e. wáddi={wà-<u>wù</u>}-tye   'They used to collect rations.'   (p.98, ex. 2-119)

- The behavior in (28) cannot be due to some more general desire for reduplicated forms to bear stress: when Base and Reduplicant are both stem-medial, neither bears stress.

(29) <u>No additional stresses stem-medially</u>

    a.   yé-rr-mi-gi=mì-{<u>fa</u>-fala}-pe   'Keep showing it!'   (p.186, ex. 3-255c)[7]

    b.   wá-n-ngi=fì-mi-{tyat-<u>it</u>}-tye[8]   'They used to show me how to do it.'   (p. 98, ex. 2-114f)

➢ B & R are only stressed when one of B or R must be stressed to satisfy STRESSL-STEM.

• The combined facts of (28) and (29) can be straightforwardly explained using the BR-correspondence version of IDENT[stress]-CH (cf. (16) above):

(30) **IDENT[stress]-BR**

    Assign one violation * for each pair of vowels standing in BR-correspondence which do not have identical values for stress (values: *primary, secondary, unstressed*).

• If STRESSL-STEM requires a stress on a vowel of a Base or Reduplicant, IDENT[stress]-BR requires a stress on its BR-correspondent.

(31) <u>Additional stress with stem-initial BR</u>: *yé-mi-ngiti=<u>fì</u>-fìtyi-pagu-pe* (ex. ((28)c))

/ ye-mi-ngiti={RED-fityi}-pagu-pe /	STRESSL-STEM	IDENT[stress]-BR	*CLASH	ONESTRESS (complex verb)
☞ a. yé-mi-ngiti=<u>fì</u>-fìtyi-pagu-pe			*	***
b. yé-mi-ngiti=<u>fì</u>-fityi-pagu-pe		*!		**
c. yé-mi-ngiti=<u>fi</u>-fityi-pagu-pe	*!			*

(32) <u>No additional stress with stem-medial BR</u>: *yé-rr-mi-gi=mì-<u>fa</u>-fala-pe* (ex. ((29)a))

/ ye-rr-mi-gi=mi-{RED-fala}-pe /	STRESSL-STEM	IDENT[stress]-BR	*CLASH	ONESTRESS (complex verb)
☞ a. yérrmigi=mì-<u>fa</u>-fala-pe				**
b. yérrmigi=mì-<u>fà</u>-fàla-pe			*!*	***!*
c. yérrmigi=mì-<u>fà</u>-fala-pe		*!	*	***
d. yérrmigi=mi-<u>fà</u>-fàla-pe	*!		*	***

Note: Stress identity is independent of featural identity; the extra stress compelled by IDENT[stress]-BR is found even when the reduplicant imperfectly copies the base: (28)d *ngúdum={bàt-<u>bìt</u>}*.

❖ Using IDENT[stress]-BR, we capture the unusual stress facts of Ngan'gityemerri verbal reduplication without any additional machinery or assumptions.

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[7] Reid does not provide stress marking on the forms in Section 3 of his grammar. Stress marks in ((29)a) are inferred, based on his detailed description in Section 2.

[8] The vowels in base and reduplicant aren't identical; this is common, and does not disrupt the stress facts.

3.2 Ngan'gityemerri nominal reduplication and compounding

- In addition to the pattern of verbal reduplication, Ngan'gityemerri also displays reduplication in its nominal system.
  - o These patterns also display stress matching: the forms in (33) display double primary stress.

(33) Nominal reduplication (Reid 2011:91, ex. 2-96)[9]
  - a. mák-mák 'white sea eagle'
  - b. wílik-wílik 'galah'
  - c. wátku-wátku 'frog (gen.)'
  - d. tyúngut-tyúngut 'frogmouth owl'
  - e. bárra-bárra 'placenta'
  - f. mágu-mágu 'left handed

- This behavior also follows from the operation of IDENT[stress]-BR, if we assume that the constraint is sensitive not only to *presence/absence* of stress, but also *stress degree* (primary vs. secondary) (as defined above), coupled with the following constraints on the assignment of primary stress:

(34) Constraints on primary stress
  - a. **PRIMARYSTRESSL**
    Assign one violation * if the leftmost syllable of the word does not bear primary stress.
  - b. **ONEPRIMARYSTRESS**
    Assign one violation * to any word which bears more than one primary stress.

(35) Double primary stress in Ngan'gityemerri nominal reduplication

/mak-mak/	PRIMARYSTRESSL	IDENT[stress]-BR	*CLASH	ONEPRIMARYSTRESS
a. mák-màk		*!	*	
☞ b. mák-mák			*	*
c. màk-mák	*!	*!	*	
d. mák-mak		*!		

- An alternative that one might pursue here (not available for the verbal forms) is a *two-prosodic-word* analysis, viewing them as a sort of compound where each prosodic word bears its own primary stress.
  - o Reid (2011:91), though, argues for a single prosodic word analysis, based on the fact that the two parts "cannot sustain a pause between them" and act like a single word w.r.t. clitics.
- Regardless, their behavior with respect to stress degree differs from non-reduplicative compounds.
  - o Standard nominal compounds show primary stress on the first member, and secondary stress on the second member:[10]

(36) Nominal compounds (Reid 2011:91, ex. 2-98)
  - a. pí-pìri 'brain'
  - b. fírr-ngàri 'toenail'
  - c. yénggi-dàwan 'smoke'
  - d. wántyirr-fìny 'armpit sweat'
  - e. tyéri-wùndi 'ear wax'

---

[9] There are no nominal reduplicants to bases of more than two syllables. (Reid (2011:91) considers this an accidental gap.) This means we cannot distinguish between base and reduplicant.

[10] Stress in compounds differs from stress in monomorphemic nominals, which display left-to-right alternating stress with non-finality (Reid 2011:90, ex 2-95). Three syllable simplex forms are as follows: *détyengi* 'today', *mínati* 'big'. These contrast both with compounds of 1syll-2syll ((1)a,b) and 2syll-1syll ((36)d).

- An analysis based on compounding or multiple prosodic words will therefore require recourse to additional assumptions which are not independently motivated for the language.
- The approach based on BR-identity is externally motivated: it is required to explain the verbal system.

- Nominal reduplicants can also participate in compounding. When this occurs, stress degree identity is again maintained. This follows from independent properties of reduplication and compounding.

(37) <u>Nominal reduplicants in compounding (Reid: p.92, ex. 2-99 & 2-100)</u>
    a. *Reduplicated nominal as first member → double primary stress*
      [[míl-míl]-mà] 'cosmetic stick (for scraping skin etc.)'
    b. *Reduplicated nominal as second member → double secondary stress*
      [múy-[fìntyi-fìntyi]] 'a crook (stick with a barbed fork for pulling branches within reach)'

3.3 Diyari & Indonesian (will be skipped due to time)

- The same principles which generate reduplicative stress matching in Ngan'gityemerri can also be seen to affect stress assignment in reduplicative constructions in Diyari (Austin 1981 [2013]) and Indonesian (Cohn 1989, McCarthy & Cohn 1994/1998, Kenstowicz 1995).
- We will not present the analysis of these cases here; yet, there are no additional mechanics or assumptions required to generate the data.

- ❖ Diyari reduplication displays primary stress on both base and reduplicant.
- This is contrary to the normal stress pattern, where the initial syllable bears primary stress and all subsequent stresses are secondary.
- This pattern is explained using the exact same constraints and rankings as used for Ngan'gityemerri nominal reduplication.

(38) <u>Double primary stress Diyari reduplication (data from Austin 1981 [2013]:38-40)</u>

		Non-reduplicated stem	Reduplicated stem	
a.	'woman'	*wílha*	*wílha-wílha*	[wídlʌ-wídlʌ]
b.	'boy'	*kánku*	*kánku-kánku*	[kʌ́nku-kʌ́nku]
c.	'to talk'	*yátha*	*yátha-yátha*	[jéʈʌ-jéʈʌ]
d.	'father'	*ngápiri*	*ngápi-ngápiri*	[ŋʌ́pi-ŋʌ́piri]
e.	'bird type'	*tyílparku*	*tyílpa-tyílparku*	[tʲílpʌ-tʲílpʌrku]
f.	'cat fish'	*ngánkanthi*	*ngánka-ngánkanthi*	[ŋʌ́nkʌ-ŋʌ́nkʌnʈi]

- ❖ Indonesian reduplication shows double primary stress, but only under very specific circumstances:
- Penultimate stress is assigned to both the base and reduplicant, as if separate prosodic words.
- When base and reduplicant contain exactly the same morphological content, stress assignment places stress on the same syllables in both base and reduplicant (left-hand column, (39) below).
  - o In just these cases, primary stress unexpectedly appears in the reduplicant (on the syllable standing in BR-correspondence to the primary stress in the base).
- When the morphological material in base and reduplicant differ, such that stress appears on different syllables in the base than the reduplicant, there is no matching of stress degree.
  - o This follows from the definition of IDENT[stress]-BR: when the presence of stress on a syllable is independently motivated by stress phonotactics, IDENT[stress]-BR (referring to stress degree) can be satisfied fully, resulting in double primary stress.

(39) Stress in Indonesian reduplication Forms (McCarthy & Cohn 1994/1998:52; cf. Cohn 1989:185)

|	*Matching*	*Non-matching*
a.	[búku][búku] 'books'	[bùku]{[bukú]-ña} 'the books'
b.	[waníta][waníta] 'women'	[wanìta]{[wanitá]-an} 'womanly (adj.)'
c.	[màsarákat][màsarákat] 'societies'	[màsaràkat]{[màsarakát]-ña} 'the societies'
d.	{[minúm]-an}{[minúm]-an} 'drinks (n.)'	{[minùm]-an}{[mìnum]-án-ña} 'the drinks'
e.	[hák][hák] 'rights' (M&C, p.32)	di-[pàs]{[pás]-kan} 'tried on, repeatedly'[11]

3.4 Local Summary

- In this section, we have shown that prosodic misapplication effects of the sort found in copy epenthesis are also found in reduplication.
  o In Ngan'gityemerri *verbal reduplication*, a drive for stress identity between vowels standing in BR-correspondence forces the placement of additional, otherwise unexpected stresses.
  o In Ngan'gityemeri *nominal reduplication*, as well as in Diyari and Indonesian, a drive for stress identity between vowels standing in BR-correspondence causes the appearance of multiple primary stresses.
- As in copy epenthesis, these effects receive a simple analysis in a correspondence-based approach.
  o It is difficult to imagine analyses of these facts in approaches that reject BR-correspondence, e.g. Morphological Doubling Theory (Inkelas & Zoll 2005), Serial Template Satisfaction (McCarthy, Kimper, & Mullin 2012).
- In the following section, we will suggest that shared structural factors are the source of the surface correspondence relation in both types of processes (BR & CH, respectively).

4 Transitive correspondence in reduplication to copy epenthesis

- Based on the prosodic misapplication facts, we have demonstrated that both copy epenthesis and reduplication must involve correspondence. *But why*?
- A potential answer to this problem comes from the representational structure of the two processes.

- Inherent in the argument that copy epenthesis is a different process than default epenthesis (INTEGRITY-violation vs. DEP-violation) is the assumption that both copy and host stand in IO-correspondence with the same input segment.

(40) Correspondence relations in copy epenthesis

Input   / VCC /
IO-Correspondence   IO-Correspondence
Output   [V_x] C [V_x] C
                CH-Correspondence
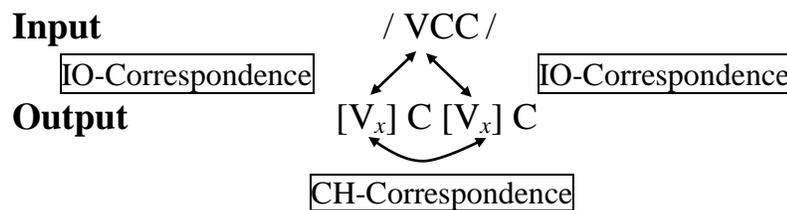
- When we consider BR-correspondence models of reduplication (McCarthy & Prince 1995), especially of the sort proposed by Spaelti (1997) and Struijke (2000), where reduplicant and output base both relate to the input via IO-correspondence, we find a virtually equivalent representation.

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[11] The non-matching behavior of (39)e *di-[pàs]{[pás]-kan}* implies that something more complicated than a vowel-based IDENT[stress]-BR is at play. We leave this as a question for future investigation.

(41) <u>Correspondence relations in reduplication</u>

Input /Root/

IO-Correspondence   IO-Correspondence (+ Root faithfulness)

Output [RED [Base]$_{Root}$]
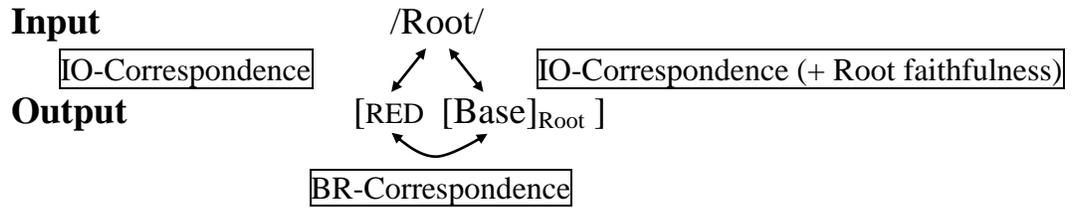
BR-Correspondence

- In representations of this sort, for each output segment which has a BR-correspondent, there is a segment in the input which has two output correspondents (unless the output segment is epenthetic).
- Reduplicated outputs can thus be viewed as the result of splitting (INTEGRITY-violation) in the same way that copy epenthesis is.
- From this perspective, the surface correspondence relation in both cases can be seen as a *byproduct* of splitting/INTEGRITY-violation.

PROPOSAL: If two (or more) output segments stand in correspondence with the same input segment (incurring an INTEGRITY violation), <u>they also stand in correspondence with each other by **transitivity**</u> (see also Struijke 2000, McCarthy 2002).

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(42) <u>Generalized multiple correspondence</u>

$/ X_i /$

$[X'_i]$ $[X''_i]$
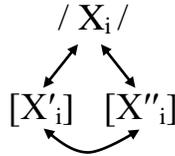
- o In a very general sense, this extends also to Output-Output/Base-Derivative correspondence, which enforces identity between words that share input material.

❖ If transitive correspondence is an inherent property of the phonological grammar, then the correspondence-based drive for identity between Copy and Host in copy epenthesis, and Base and Reduplicant in reduplication, follows directly from the nature of their structural representations.

5   Summary and conclusion

- We have shown that similar classes of prosodic misapplication effects are attested in the domains of both copy epenthesis and reduplication.

(43) Summary of effects observed

	Language	*Source*	*Effect*	*Type of Prominence*
Copy Epenthesis	Scottish Gaelic	Bosch & de Jong 1997 Hammond et al. 2014	- blocking - duration matching	duration
	Ho-Chunk	Miner 1979, *et seq.* Hale & White Eagle 1980	- misapplication of stress - duration matching - nasality matching	- stress / pitch - duration - nasality
	Selayarese	Mithun & Basri 1986 Broselow 2001	misapplication of stress	stress / length
Reduplication	Ngan'gityemerri	Reid 2011	- misapplication of stress - stress-degree matching	stress
	Diyari	Austin 1981 [2013]	stress-degree matching	stress
	Indonesian	McCarthy & Cohn 1994/1998 Kenstowicz 1995	stress-degree matching	stress

- These effects provide strong evidence that copy epenthesis must involve *correspondence*, as argued for by Kitto & de Lacy (1999), and not (exclusively) *spreading*, as argued for by Kawahara (2007).
    - o Kawahara argues that Kitto & de Lacy's correspondence-based analysis of copy epenthesis *overgenerates*: it predicts identity between copy-host pairs for prosodic properties, a class of effects that Kawahara's survey of copy epenthesis did not uncover.[12]
    - o But we have shown these effects are attested; Kawahara's overgeneration argument is moot, and indeed reversed, since now the spreading analysis undergenerates.
    - o It is difficult to imagine how an analysis that *only* makes use of spreading could account for the effects observed here. Their existence is therefore an argument strongly in favor of the correspondence-style analysis.

- In addition, the proposed structural similarity between copy epenthesis and reduplication (anticipated by Kitto & de Lacy) helps us understand why the two processes display many of the same effects.
    - o We have shown that similar suprasegmental identity effects occur in both processes.
    - o If copy epenthesis and reduplication both involve correspondence, their similarity in this respect is predicted, and it's also what's attested.
    - o Furthermore, it suggests a motivation for the existence of these correspondence relations: transitive correspondence is a property of the phonological grammar.

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[12] Kawahara's main additional objection to a correspondence-based analysis has to do with locality restrictions: copy epenthesis never copies a vowel other than the closest one, whereas reduplication can choose which segments to copy based on markedness preferences. We believe that this generalization is correct, but that locality is an artifact of the phonetic origins of copy epenthesis, rather than the sign of an altogether different mechanism.

6 References

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7   Appendix: on the transcription of stress in DL sequences

7.1   Stress transcription in Ho-Chunk

- All sources on Ho-Chunk stress agree that, when it falls in certain positions within the word, a Dorsey's Law (DL) sequence must carry stress.
    - o   However, the transcription of stress in such DL sequences has varied across descriptions.
- Starting with Hale & White Eagle (1980), work on stress in Dorsey's Law sequences assumes that only one of the copy-host pair bears stress.
- But, in work prior to Hale & White Eagle (1980), there is some acknowledgment of prominence on both members of a stressed DL sequence:

Susman 1943:13: in DL sequences, "secondary stress seems to attach equally to both syllables."

**Miner 1979**: both copy and host vowels are transcribed with stress (e.g. hipèrés, 'know').
- Although Miner transcribes secondary stress on the first member of the DL pair, he notes (pp. 26-27) that often "the secondarily accented syllable has almost as much accent as, or even as much as (but never more than) the primarily accented one."
- Miner (p.27) speculates that this ambiguity caused the authors of earlier grammars (Lipkind 1945, Wolff 1950, 1951, Matthews 1958) to transcribe stress on the first syllable of DL sequences only.
    - o   Miner's move in later work (1981, 1989) to transcribe stress on only one portion of the DL sequence is made without comment.

- Based on these descriptions, and the pitch-tracking data presented below in (45)-(47), we assert that:
    - ➤   In stressed DL sequences, *both vowels* (i.e. copy and host) bear stress.

- In (44), we provide the transcriptions we assume in our analysis, compared to the transcriptions used in later analyses such as Miner 1989.

(44) <u>Transcription of stress in Dorsey's Law words</u>

|			Our interpretation	Miner's (1989) transcription
a.	/kre/	'to leave returning'	[kéré]	[keré]
b.	/hipres/	'to know'	[hipérés]	[hiperés]
c.	/hirupni/	'to twist'	[hirupíní]	[hirupíni]
d.	/sruxruk/	'you earn'	[suruxúrúk]	[suruxúruk]
e.	/wakripras/	'flat insect'	[wakiripárás]	[wakiripáras]
f.	/hikroho/	'to prepare'	[hikorohó]	[hikorohó]
g.	/hikruni/	'tangled'	[hikuruní]	[hikuruní]

➢ The early interpretation that both syllables bear stress is supported by pitch data (Hall 2003:172ff).
  o Pitch is the major (maybe only?) cue to stress in Ho-Chunk (Miner 1979:25).

- In DL sequences, both vowels bear high pitch (45).

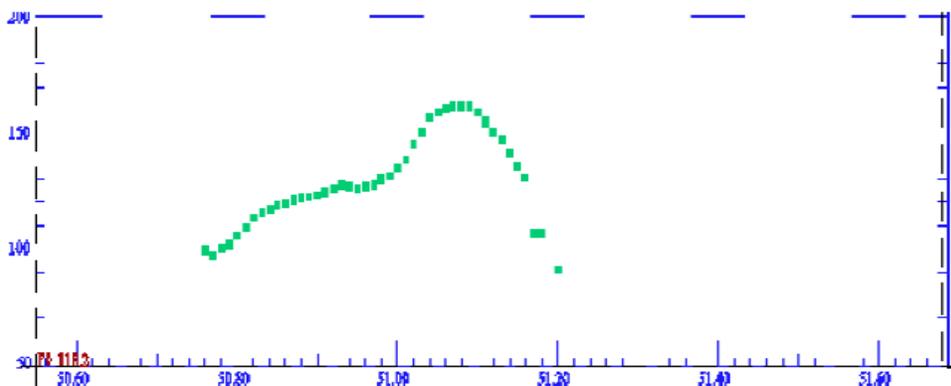(45) Pitch track for [seretʃ] (-*sere*- is a DL sequence)
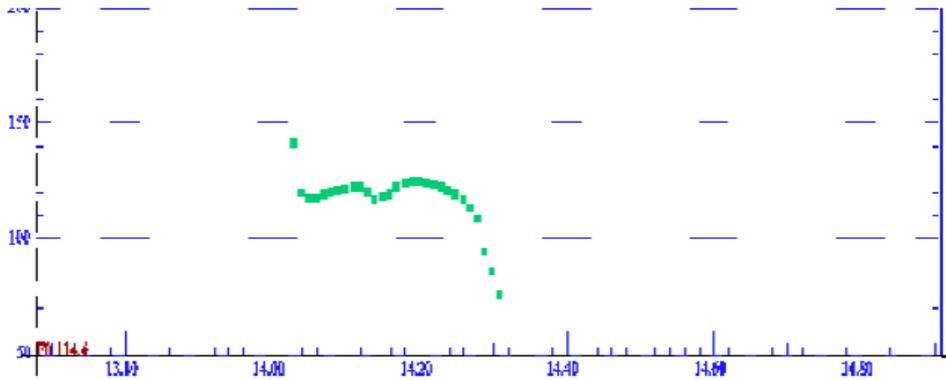
- This contrasts with stressed long vowels (46), in which only one half of the vowel (the first half) bears high pitch:

(46) Pitch track for monosyllabic [sé:p]
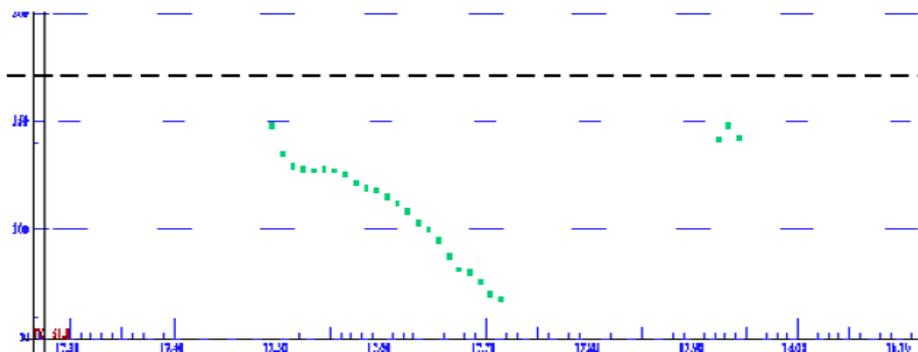
- This contrasts also with light disyllabic words without DL (47), in which only the stressed syllable bears high pitch:

(47) Pitch track for non-DL disyllabic [warútʃ]

7.2   Stress misapplication in Selayarese

➢ In Selayarese, there is one configuration in which copy epenthesis causes stress to misapply.

• In the general case, stress in Selayarese falls on the penultimate syllable.

(48) <u>Penultimate stress in Selayarese (Mithun & Basri 1986:219 for a,b; 226 for c,d)</u>
    a. [rajinrá:jin]   'rather diligent'
    b. [kasú:ᵐba]   'dye for coloring clothes or cake'
    c. [sá:sa]   'cut (grass)'
    d. [sássa]   'wash'

    o As shown in (48), if the stressed syllable is open, the vowel lengthens (a-c); if the stressed syllable is closed (by a geminate), the vowel is short (d).
    o Long vowels are not found except under stress.
    ➢ For simplicity, we only entertain candidates that have the above properties.

• We model penultimate stress with the constraints *LAPSER and NONFINALITY (Gordon 2002).[13]

(49) <u>Foot-free stress window constraints</u>
    a. ***LAPSER**: assign one violation mark * if neither of the final two syllables are stressed.
    b. **NONFINALITY**: assign one violation mark * if the final syllable is stressed.

(50) <u>Default penultimate stress:</u> [kasú:ᵐba] (ex. ((48)b))

/kasuᵐba/	*LAPSER	NONFINALITY
a. ká:suᵐba	*!	
b. ☞ kasú:ᵐba		
c. kasuᵐbá:		*!

• There is, however, a class of words that has exceptional antepenultimate stress:

(51) <u>Antepenultimate stress in Selayarese (Mithun & Basri 1986: 237)</u>[14]
    a. [só:ᵐbala] 'a sail'
    b. [ká:tala] 'itch'
    c. [bó:tolo] 'bottle'
    d. [kí:kiri] 'metal file'
    e. [hállasa] 'suffer'

• These words have certain properties in common (Mithun & Basri 1986: 237):
    o Last two vowels are identical.
    o Last two vowels separated by /s/, /r/, or /l/ (coronal continuant).
    o Final vowel drops before a vowel-initial suffix: e.g. hállasa 'suffer' ↔ hallá:s-i 'make suffer'

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[13] We use foot-free constraints here for simplicity, but we expect that the same result can be derived equally well with feet.
[14] Some previous accounts of Selayarese stress (Piggott 1995, Kitto & de Lacy 1999) have assumed that epenthetic vowels do not lengthen under stress. While it's true that epenthetic vowels fail to lengthen when they precede the possessive suffix /-ku/, outside of this specific environment, they lengthen just like underlying vowels do. See Broselow 2001:22 for details.

- The traditional explanation (Mithun & Basri 1986) is that the word-final vowel is epenthetic (likely due to a ban on codas), and invisible to stress assignment.

➢ **Further data reveals that epenthetic vowels aren't always invisible to stress.**

- In the loanwords in (52) and (53), stress lands on the penult despite there being an epenthetic vowel (underlined) in the penult (52) or the ultima and the antepenult (53).

(52) Internal epenthesis in loanwords (Broselow 2001:3)
    a. [kará:tu]   'card',   not *[ká:ratu]   (source: Bahasa Indonesian [kártu])
    b. [surú:ga]   'heaven', not *[sú:ruga]   (source: Bahasa Indonesian [súrga])

(53) Internal and external epenthesis in loanwords (Broselow 2001:8)
    a. [solodé:re]   'weld',   not *[só:lodere]   (source: Bahasa Indonesian [sólder])
    b. [karatí:si]   'ticket',   not *[ká:ratisi]   (source: Bahasa Indonesian [kárcis])

- In such words, default stress applies, showing that the epenthetic vowels clearly count for stress.

- We propose, following Kitto & de Lacy's (1999) analysis, that a drive for copy and host vowels *to agree in stress*[15] drives misapplication in the class of words with antepenultimate stress in (51) above.
    - We encode this with the following constraint:

(54) **IDENT[stress]-CH**:
Assign one violation * for each pair of vowels standing in CH-correspondence which do not have identical values for stress (i.e. [stressed]↔[unstressed] or [unstressed]↔[stressed]).

- **To derive misapplication** (antepenultimate stress): IDENT[stress]-CH » *LAPSER

(55) Misapplication of stress to satisfy IDENT[stress]-CH in final epenthesis: [só:ᵐbala] (ex. ((51)a))

/soᵐbal/	NONFINALITY	*CLASH	IDENT[stress]-CH	*LAPSER
a. ☞ só:ᵐba$_x$la$_x$				*
b. soᵐbá:$_x$la$_x$			*!	
c. soᵐba$_x$lá:$_x$	*!		*	
d. soᵐbá$_x$lá:$_x$	*!	*!		

- IDENT[stress]-CH does *not* lead to misapplication in cases like (52) and (53), because there is no permissible means to satisfy it.

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[15] An equivalent analysis in which the vowels must agree in *length* is also possible. We will not present this analysis here.

- **To explain (52)**: NONFINALITY, *CLASH » IDENT[stress]-CH
    - Stressing the final (NONFINALITY violation): worse than a copy-host stress mismatch.
    - Stressing both copy and host, causing clash: worse than having a copy-host stress mismatch.
    - Therefore, in the forms in (52), stress defaults to the penult (to satisfy *LAPSER).

(56) *CLASH: Assign one violation mark * for every sequence of two adjacent stressed syllables.

(57) Default penultimate stress with medial epenthesis: [kará:tu] (ex. ((52)a))

| /kartu/	NONFINALITY	*CLASH	IDENT[stress]-CH	*LAPSER
a. ká:$_x$ra$_x$tu			*	*!
b. ☞ ka$_x$rá:$_x$tu			*	
c. ká$_x$rá:$_x$tu		*!		
d. ka$_x$ra$_x$tú:	*!			

- When there is both medial and final copy epenthesis, as in (53), putting a single stress on any vowel will result in a violation of IDENT[stress]-CH, so stress again defaults to the penult.

(58) Default penultimate with medial and final epenthesis: [solodé:re] (ex. ((53)a))

/solder/	NONFINALITY	IDENT[stress]-CH	*LAPSER
a. só:$_x$lo$_x$de$_y$re$_y$		*	*!
b. so$_x$ló:$_x$de$_y$re$_y$		*	*!
c. ☞ so$_x$lo$_x$dé:$_y$re$_y$		*	
d. so$_x$lo$_x$de$_y$ré:$_y$	*!	*	

- The only configuration where stress could possibly misapply is when the single copy-host sequence is word-final, as in (23). And this is exactly where we see misapplication, i.e. antepenultimate stress.

(59) Ranking summary

NONFINALITY   *CLASH

              IDENT[stress]-CH

                   *LAPSE
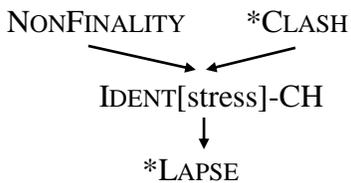
[ka$_x$rá:$_x$tu] > *[ka$_x$ra$_x$tú:] ; [ka$_x$rá:$_x$tu] > *[ká$_x$rá:$_x$tu]

[só:^{m}ba$_x$la$_x$] > *[so^{m}bá:$_x$la$_x$]