

# Phonological Restructuring in Odawa

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# Introduction

- Rhythmic syncope systems undergo radical restructuring.

# Outline

- Transitional Odawa extended phonetic reduction to deletion.<sup>1</sup>
  - This created opaque syncope for language learners.
- New Odawa promptly restructured with:
  - a levelled lexicon,
  - reanalyzed prefixes,
  - transparent syncope.
- Opaque rhythmic syncope has triggered restructuring elsewhere.
- But transparent rhythmic syncope does not.
- Phonological theories should reflect rhythmic syncope's instability.

# Transitional Odawa

–1930s Adults–

# Rhythmic Syncope



- Core generalization: delete unstressed vowels (Bloomfield 1957, Kaye 1973, Piggott 1983).
- $(\sigma \acute{\sigma}) \rightarrow (- \acute{\sigma})$   
(nká) (n\_ká) ‘goose’

- Vowel deletion depends on feet.
- But deletion destroys the feet.

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• ‘book’	‘my book’	
/mʌzɪnʌʔɪgʌn/	/ni-mʌzɪnʌʔɪgʌn/	UR
(mʌzɪ)(nʌʔɪ)(gʌn)	(nimʌ)(zimʌ)(ʔɪgʌn)	Stress
(m_zɪ)(n_ʔɪ)(gʌn)	(n_mʌ)(z_nʌ)(ʔ_gʌn)	Syncope
[mzɪnʔɪgʌn]	[nmʌznʌʔgʌn]	SR

- To learn this, you can't use Classic OT (Kager 1997, Blumenfeld 2006).

mAZɪnʌʔɪgʌn	*WEAKV	MAX-V
a.  (mzɪ)(nʔɪ)(gʌn)		**
b. (mʌzɪ)(nʌʔɪ)(gʌn)	**!	
c.  (mʌz)(nʌʔ)(gʌn)		**

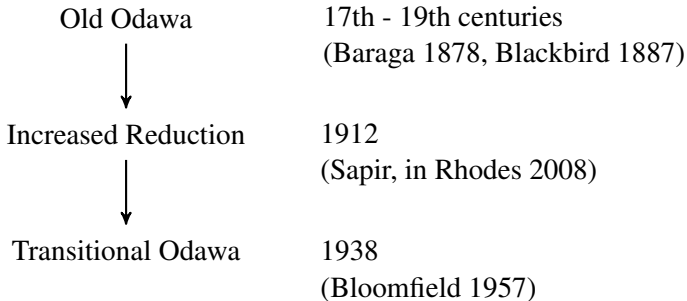


- To learn this, you can't use Classic OT (Kager 1997, Blumenfeld 2006).

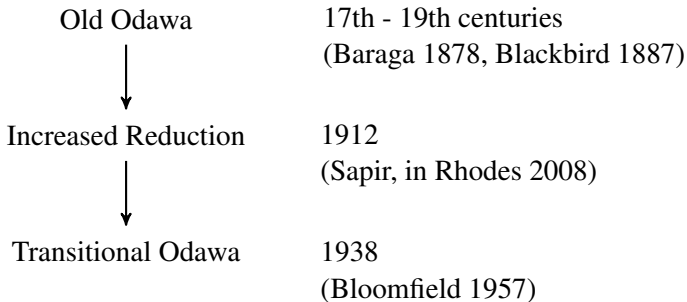
mΛZɪnΛʔɪgΛn	*WEAKV	MAX-V
a.  (mzɪ)(nʔɪ)(gʌn)		**
b. (mΛzɪ)(nΛʔɪ)(gʌn)	**!	
c.  (mʌz)(nʌʔ)(gʌn)		**

- Classic OT tries to make footing and syncope apply simultaneously.
- An intermediate representation guides deletion (McCarthy 2008).

## Reduction → Deletion

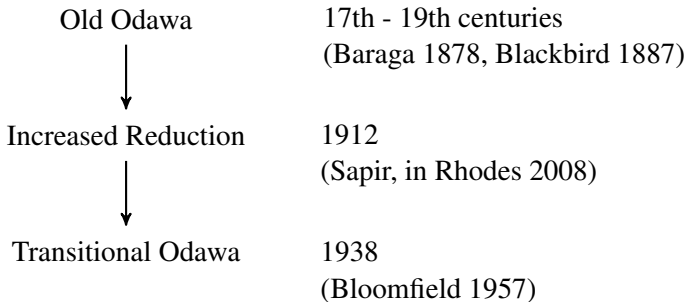


## Reduction → Deletion



- “The vowels are . . . *never* silent” (Baraga 1878:4, *emph. orig.*).

## Reduction → Deletion



- “The vowels are . . . *never* silent” (Baraga 1878:4, *emph. orig.*).
- “The reduced vowels are rapidly spoken and often whispered or entirely omitted” (Bloomfield 1957:5).

# New Odawa

–1930s Children–

# Transitional Lexicon

- Transitional Odawa had allomorphy in stems.

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	Unprefixed	Prefixed	
a.	d <sub>-</sub> ngífk <sub>-</sub> w-á:d	n <sub>-</sub> -dáng <sub>-</sub> fkáw-á:	kick
b.	d <sub>-</sub> gón <sub>-</sub> gé:	n <sub>-</sub> -dág <sub>-</sub> nígé:	mix things
c.	b <sub>-</sub> zógé:ǰín	n <sub>-</sub> -bíz <sub>-</sub> gé:ǰín	stumble

## New Lexicon

- New lexicon is massively leveled (Rhodes 1985a; 1985b).



# New Lexicon

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	New Unprefixed	New Prefixed	
a.	dngɪʃkw-a:-d	ndΛ-dngɪʃkw-a:	kick
b.	dgʊnge:	ndΛ-dgʊnge:	mix things
c.	bzʊge:ʃɪm	ndΛ-bzʊge:ʃɪm	stumble
	<hr/>		
	T. Unprefixed	T. Prefixed	
a.	d_ɲgɪʃk_w-á:-d	n_-dÁng_ʃkÁw-á:	kick
b.	d_gʊn_gé:	n_-dÁg_nígé:	mix things
c.	b_zʊgé:ʃɪm	n_-bíz_gé:ʃɪm	stumble

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- |    | New Unprefixed | New Prefixed   |            |
|----|----------------|----------------|------------|
| a. | dngɪʃkw-a:-d   | ndΛ-dngɪʃkw-a: | kick       |
| b. | dgʊnge:        | ndΛ-dgʊnge:    | mix things |
| c. | bzʊge:ʃɪm      | ndΛ-bzʊge:ʃɪm  | stumble    |

- |    | T. Unprefixed  | T. Prefixed     |            |
|----|----------------|-----------------|------------|
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| c. | b_zʊgé:ʃɪm     | n_-bíz_gé:ʃɪm   | stumble    |

∴ New URs come from Transitional unprefixed forms (Bowers 2012).

## New Prefixes

- New prefixes arose via reanalysis of Transitional Odawa vowel-initial words:
- ‘He hangs’      ‘I hang’  
 /Λgó:(d̥zín)/      /nɪ-Λgó:(d̥zín)/      UR  
 —      nɪ[d]Λgó:(d̥zín)      Hiatus Resolution  
 (Λgó:)(d̥zín)      (nɪdÁ)(gó:)(d̥zín)      Stress  
 (–gó:)(d̥zín)      (n.dÁ)(gó:)(d̥zín)      Syncope  
 [gó:d̥zín]      [ndÁgó:d̥zín]      SR

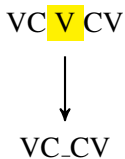
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/Λgó:dʒím/	/nɪ-Λgó:dʒím/	UR
—	nɪ[d]Λgó:dʒím	Hiatus Resolution
(Λgó:)(dʒím)	(nɪdÁ)(gó:)(dʒím)	Stress
(-gó:)(dʒím)	(n.dÁ)(gó:)(dʒím)	Syncope
[gó:dʒím]	[ndÁgó:dʒím]	SR
- A plausible analysis (repeatable for [ɪ, ʊ], see Bowers 2012; 2013):
- |     |  |         |            |
|-----|--|---------|------------|
| ndΛ |  | gó:dʒím | ‘He hangs’ |
|     |  | gó:dʒím | ‘I hang’   |

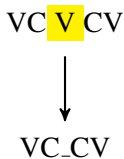
# New Grammar

- New syncope is in the two-sided open syllable.



# New Grammar

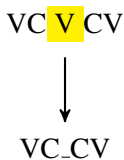
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# New Grammar

- New syncope is in the two-sided open syllable.



- This is transparent: “delete if the cluster is ok”.
- No reference to stress is needed.

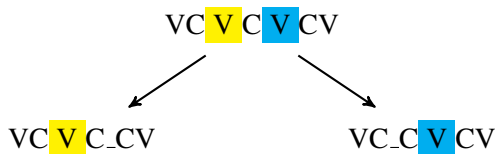
- a. mkizim      mkiz\_n-ʌn      shoe
- b. a:nʌk      a:n\_k-ʌg      brown thrasher
- c. wa:gʊf      wa:g\_f-ʌg      fox
- d. pwa:gʌn      pwa:g\_n-ʌg      pipe



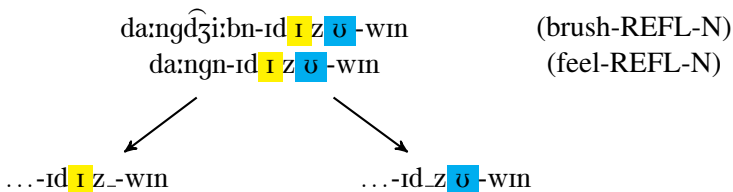
- a. mkizim      mkiz\_n-Λn      shoe
  - b. a:nΛk      a:n\_k-Λg      brown thrasher
  - c. wa:gʊf      wa:g\_f-Λg      fox
  - d. pwa:gΛn      pwa:g\_n-Λg      pipe
- 
- New syncope blocked elsewhere.
- 
- a. mi:knʊd      mi:knʊd-Λn      pants
  - b. mi:ʒmin      mi:ʒmin-Λn      acorns
  - c. a:bd̂ʒitʃgΛn      a:bd̂ʒitʃgΛn-Λn      tool
  - d. d̂ʒi:gdΛbgΛn      d̂ʒi:gdΛbgΛn-Λn      broom

## Deletion Sites Vary

- Free variation if two vowels are in the two-sided open syllable (Bowers 2012).



- \*VC\_C\_CV



- We don't see ...-ɪd\_z\_-wm
- Transitional Odawa did not have this variation.

## Restructuring was Abrupt

- Speakers born in the 1930s created New Odawa (Piggott 1980:2, Rhodes 1985a; 1985b).
- Phonetic change culminated in Transitional Odawa around 1938 (Bloomfield 1957).

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- Speakers born in the 1930s created New Odawa (Piggott 1980:2, Rhodes 1985a; 1985b).
- Phonetic change culminated in Transitional Odawa around 1938 (Bloomfield 1957).
- ∴ Conjecture: New Odawa was a response to Transitional Odawa.
  - Leveling to a single member of the paradigm,
  - Recut prefixes,
  - Development of a transparent syncope process.

# Restructuring beyond Odawa

## Old Irish

- Vowels deleted in left-to-right trochees (Thurneysen 1946, McManus 1983).
- ‘similar’            ‘neg-similar-pl’  

/kosamil/	/e-kosamil-i/	UR
(kósa)(míl)	(éko)(sámi)(lí)	Stress
(kós_)(míl)	(ék_)(sám_)(lí)	Syncope
[kósmíl]	[éksámli]	SR

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 (kósa)(míl)      (éko)(sámi)(lí)      Stress  
 (kós\_)(míl)      (ék\_)(sám\_)(lí)      Syncope  
 [kósmíl]      [éksámli]      SR
- Old Irish promptly restructured (Thurneysen 1946).
  - \*(tím\_)(θírext) → tim.θ\_rext ‘service’



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(kósa)(míl)	(éko)(sámi)(lí)	Stress
(kós_)(míl)	(ék_)(sám_)(lí)	Syncope
[kósmíl]	[éksámli]	SR
- Old Irish promptly restructured (Thurneysen 1946).
  - \*(tím\_)(θírext) → tim.θ\_rext ‘service’
- Free variation observed:
  - tomon\_tis ~ tom\_nitis ‘that they would think’

## Slavic - Havlík's Law

- Jers ([I, ʊ]) deleted in right-to-left trochees (V. Kiparsky 1979).
- 'hermit-acc.sg'      'hermit-nom.sg'
 

/otʊʃʲɪlɪtsʲ-a/	/otʊʃʲɪlɪtsʲ-ɪ/	UR
(óʈʊ)(ʃʲɪlɪ)(tsʲá)	(ó)(tʊʃʲɪ)(lɪtsʲɪ)	Stress
(ót_)(ʃʲɪl_)(tsʲá)	(ó)(tʊʃʲ_)(lɪtsʲ_)	Syncope
(ót)(ʃʲél)(tsʲá)	(ó)(tóʃʲ)(létsʲ)	Lowering
[ótʃʲéltsʲá]	[ótóʃʲlétsʲ]	SR

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(ótʊ)(ʃʲɪlɪ)(tsʲá)	(ó)(tóʃʲɪ)(lɪtsʲɪ)	Stress
(ót_)(ʃʲɪl_)(tsʲá)	(ó)(tóʃʲ_)(lɪtsʲ_)	Syncope
(ót)(ʃʲél)(tsʲá)	(ó)(tóʃʲ)(létsʲ)	Lowering
[ótʃʲéltsʲá]	[ótóʃʲlétsʲ]	SR
- Multiple vowel/zero alternations are the hallmark of rhythmic syncope.

## Slavic - Havlík's Law

- “Multiple vowel/zero alternations were eliminated simultaneously with the jer-shift itself” (Isačenko 1970:96).
- Modern Russian “did not preserve *a single case* of multiple vowel/zero alternations” (but residues in prefixes, Isačenko 1970:122, emphasis original).
- Modern Russian jer deletion is cyclic and regulated by phonotactics (Gouskova 2012, Pesetsky 1979, Yearley 1995).

## See Also ...

- Brittonic (Jackson 1953).
- Mandaic (Malone 1997).
- Potawatomi (Hockett 1948:5).
- Unami (Goddard 1979; 1982).
- Aguaruna (Payne 1990, Deicat 1996, McCarthy 2008, Bowers In Press).


## Tonkawa - Transparent Rhythm

- Vowels delete in left-to-right trochees (Hoijer 1933; 1946; 1949).
- But the preceding consonant became longer and syllabic.

- ‘I lick him’      ‘He licks me’  
 /netale-oʔs/      /ke-netale-oʔ/      UR  
 netal\_oʔs      kenetal\_oʔ      Hiatus Resolution  
 (néta)(lóʔs)      (kéne)(táloʔ)      Stress  
 (nétt\_)(lóʔs)      (kénnt\_)(táloʔ)      Syncope and Lengthening  
 [néttlóʔs]      [kénntáloʔ]      SR


# Tonkawa - Transparent Rhythm

- This could be done in Classic OT.

kenetaleo?	MAX-SYLL	LMOST	*WEAKV	ID-SYLL
a.  (kénn̩)(tálo?)			*	*
b. (kéne)(tálo?)			**!	
c. (kén)(tálo?)	*!		*	
d. ke(nétt̩)lo?		*!		*

## Tonkawa - Transparent Rhythm

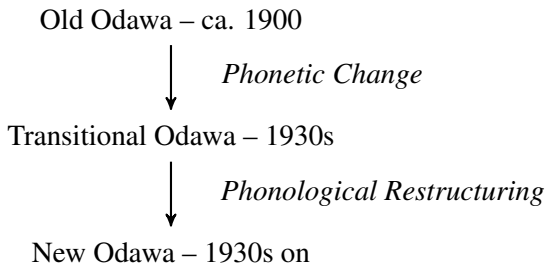
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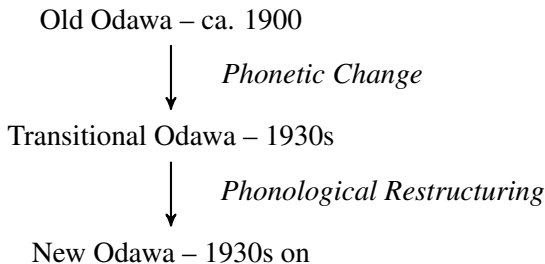
kenetaleo?	MAX-SYLL	LMOST	*WEAKV	ID-SYLL
a.  (kénn̩)(tálo?)			*	*
b. (kéne)(tálo?)			**!	
c. (kén)(tálo?)	*!		*	
d. ke(nétt̩)lo?		*!		*

- Transparent metrical structure → no restructuring.
- Gradient/optional syncope is likewise stable (Munsee: Goddard 1979; 1982, Macushi: Hawkins 1950).

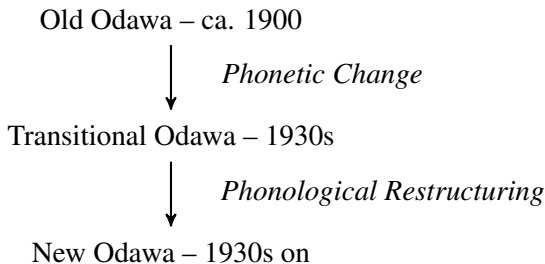


# Summary and Conclusion





- McCarthy (2008): harmonic serialism best explains rhythmic syncope.
- Odawa and similar cases suggest rhythmic syncope is unstable.



- McCarthy (2008): harmonic serialism best explains rhythmic syncope.
- Odawa and similar cases suggest rhythmic syncope is unstable.
- ∴ Rhythmic syncope may be unlearnable, undermining McCarthy's argument.

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# Concrete Lexical Theory

- To generate unstressed vowel deletion, URs need all the vowels.
- Learners would have to build URs from several surface forms.

- |    |   |   |   |   |   |   |   |      |
|----|---|---|---|---|---|---|---|------|
|    | m | Λ | k | I | z | ɪ | n | UR   |
|    | m |   | k | I | z | ɪ | n | SR 1 |
| n- | m | Λ | k |   | z | ɪ | n | SR 2 |

- Some theories require URs to correspond to one surface form (Albright 2002; 2010).

- Over 400 words in Rhodes (1985a) would be exceptional.
- E.g:  $nd_{\Lambda}\widehat{d}z\epsilon:p\bar{I}z$  ‘I am lively’ vs  $\widehat{d}z\epsilon:pz\bar{I}-d$  ‘if he is lively’.

	$\widehat{d}z$	e:	p	I	z	I		New Odawa UR
	$\widehat{d}z$	e:	p		z	I	d	T. Odawa SR
ndo:	$\widehat{d}z$	e:	p	I	z			T. Odawa SR

- Also:

• Unsuffixed	Suffixed	
$nd_{\Lambda}\text{-bi:ndge:b}\bar{I}z$	$\text{bi:ndge:bz}\bar{U}-d$	zip inside
$nd_{\Lambda}\text{-bk}\bar{U}d_{\Lambda}\bar{b}$	$\text{bk}\bar{U}d\bar{b}\bar{I}-d$	perch
$nd_{\Lambda}\text{-nd}\bar{z}in_{\Lambda}\bar{z}$	$\text{nd}\bar{z}in\bar{z}\bar{U}-d$	dispute

# Newness of New Syncope

- Cluster simplification feeds novel deletions.
  - Free variation when two vowels in the two sided open syllable.
  - Optional deletion with new prefixes.
- ∴ New Odawa syncope is indeed new.

## Syncope has Spread

- Vowels that never deleted in Transitional Odawa delete in New Odawa.

- ‘If he misses him’ ‘Drums’
 

/me:d $\Delta$ s	I n-a:-d/	/de:we:ʔig	$\Delta$ n- $\Delta$ n/	UR
(mé:)(d $\Delta$ sí)(ná:d)		(dé:)(wé:)(ʔig $\Delta$ )(n $\Delta$ n)		Stress
(mé:)(d_sí)(ná:d)		(dé:)(wé:)(ʔ_g $\Delta$ )(n $\Delta$ n)		Syncope
[mé:ds	í ná:d]	[dé:wé:ʔg	$\Delta$ n $\Delta$ n]	SR

- The [ds] and [ʔg] clusters are now simplified to [s] and [g].
- Deletion observed: *me:s\_n-a:* ‘miss him’ and *de:we:g\_n- $\Delta$ n* ‘drums’.

## Optional at Left Edge

- $nd\Lambda-$  + CVCV: =  $nd\Lambda C$  **V** CV:
- **V** deletes optionally.

	Non-deletion	Deletion	Old Form
a.	$nd\Lambda-3$ <b>I</b> da:ba:n-a:	$nd\Lambda-3\_da:ba:n-a:$	$n\_-[d]I3\_da:ba:n-a:$
b.	$nd\Lambda-n$ <b>I</b> ze:kwe:	$nd\Lambda-n\_ze:kwe:$	$n\_-[d]m\_ze:kwe:$
c.	$gdo:-k$ <b>\Lambda</b> wa:te:fim	$gdo:-k\_wa:te:fim$	$g\_-[d]\Lambda k\_wa:te:fim$

Glosses: ‘I drag him’, ‘I cook so’, ‘you cast a shadow’

# Aguaruna

- Vowels deleted in left-to-right iambs (Payne 1990, McCarthy 2008).
- But now deletion in VC\_CV is cyclic.

## Aguaruna 2

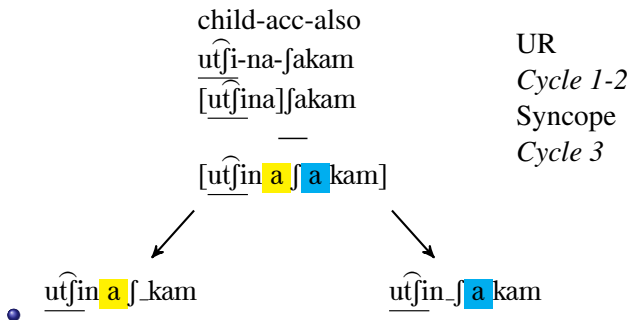
- When affixes are short, this mimics iambic syncope.

- /it̚ʃinaka-ŋu-mi-na/ UR 'clay pot-pos-2-acc'  
 [it̚ʃin a ka]ŋumina *Cycle 1*  
 [it̚ʃin \_ ka]ŋumina *Syncope*  
 [it̚ʃinkaŋu]mina *Cycle 2*  
 — *Syncope*  
 [it̚ʃinkaŋ u mi]na *Cycle 3*  
 [it̚ʃinkaŋ \_ mi]na *Syncope*  
 [it̚ʃinkaŋmina] *Cycle 4*  
 [it̚ʃinkaŋmin\_] *Apocope*  
 — *Syncope*  
 it̚ʃin kaŋ min\_ *SR* (it̚ʃi)(n\_ká)(ŋ\_mí)n\_



# Aguaruna 3

- But when affixes are long, free variation results.



## What About Arabic?

- Palestinian Arabic has an opaque stress-syncope interaction (Brame 1974, Kenstowicz 1980, Kiparsky 2000)
- /fihim-na/    /fihim-∅-na/    UR  
   [fihímna]    [fihím]na        Stress (stem)  
       —        [fihímna]        Stress (word)  
   f\_hímna        —                Syncope (word)  
   [fhímna]        [fihímna]        SR
- But this is due to phonology-morphology interface. And ...
- There is surface justification for lost stress (*fihim-∅* ‘he understood’)