

Phonological Restructuring in Odawa

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Outline

- 1 Old Odawa
 - Syncope
 - Syncope was Opaque
 - Syncope was an Innovation
- 2 New Odawa
 - Time Course of Restructuring
 - New Lexicon
 - New Prefixes
 - New Syncope
- 3 Theoretical Implications
 - Serialism vs Parallelism

Old Odawa

–1930s Adults–

Syncope

- Core generalization: delete unstressed vowels (Bloomfield 1957, Kaye 1973, Piggott 1983).
- $(\begin{smallmatrix} \cdot & x \\ \sigma & \sigma \end{smallmatrix}) \rightarrow (\begin{smallmatrix} \cdot & x \\ \sigma & \end{smallmatrix})$

Syncope

- Core generalization: delete unstressed vowels (Bloomfield 1957, Kaye 1973, Piggott 1983).

- $(\underset{\sigma}{.} \quad \underset{\sigma}{x}) \rightarrow (\underset{\sigma}{.} \quad \underset{\sigma}{x})$

(1) $(\underset{\sigma}{\sigma} \quad \underset{\sigma}{\sigma}) \rightarrow (\underset{-}{\sigma} \quad \underset{\sigma}{\sigma})$
(nr'kΛ) (n_ 'kΛ) 'goose'

- Step 1: Form iambic feet.
- Step 2: Destroy the feet.

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(2)	‘book’	‘my book’	
	/mΛzɪnΛʔɪgΛn/	/ni-mΛzɪnΛʔɪgΛn/	UR
	(mΛ'zɪ)(nΛ'ʔɪ)('gΛn)	(ni'mΛ)(zɪ'nΛ)(ʔɪ'gΛn)	Stress
	(m_ 'zɪ)(n_ 'ʔɪ)('gΛn)	(n_ 'mΛ)(z_ 'nΛ)(ʔ_ 'gΛn)	Syncope
	[m'zɪm'ʔɪ'gΛn]	[n'mΛz'nΛʔ'gΛn]	SR

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	(m_ 'zɪ)(n_ 'ʔɪ)('gΛn)	(n_ 'mΛ)(z_ 'nΛ)(ʔ_ 'gΛn)	Syncope
	[m'zɪm'ʔɪ'gΛn]	[n'mΛz'nΛʔ'gΛn]	SR

- No surface-oriented way to describe it.

Reduction → Deletion

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- Reduction became deletion in the 1930s.
- “The reduced vowels are rapidly spoken and often whispered or entirely omitted” (Bloomfield 1957:5).

New Odawa

–1930s Children–

Restructuring was Abrupt

- Speakers born in the 1930s created New Odawa (Piggott 1980:2, Rhodes 1985a; 1985b).
 - Bloomfield documented Old Odawa syncope in 1938.
- ∴ Conjecture: New Odawa was a response to Old Odawa syncope.

Old Lexicon

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(3)	Unprefixed	Prefixed	
a.	d_n'gɪf'k_w-a:-d	n_-'dʌŋg_-'f'kʌ'w-a:	kick
b.	d_'gʊn_'ge:	n_-'dʌg_-'nɪ'ge:	mix things
c.	b_-'zʊ'ge:'fɪm	n_-'bɪz_'ge:'fɪm	stumble

New Lexicon

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

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(4)	Unprefixed	Prefixed	
a.	dngɪfkw-a:-d	ndΛ/ndo:-dngɪfkw-a:	kick
b.	dgʊnge:	ndΛ/ndo:-dgʊnge:	mix things
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∴ New URs are identical to Old unprefixed forms.

New Prefixes

- New prefixes arose via reanalysis of Old Odawa vowel-initial words:

(5)	‘He hangs’	‘I hang’	
	/ʌ'go:ḁʒim/	/ni-ʌ'go:ḁʒim/	UR
	—	ni[d]ʌ'go:ḁʒim	Hiatus Resolution
	(ʌ'go:)(ḁʒim)	(ni'dʌ)('go:)(ḁʒim)	Stress
	(-'go:)(ḁʒim)	(n-'dʌ)('go:)(ḁʒim)	Syncope
	['go:'ḁʒim]	[n'dʌ'go:'ḁʒim]	SR

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(5)	‘He hangs’	‘I hang’	
	/Λgo:d̥ʒm/	/ni-Λgo:d̥ʒm/	UR
	—	ni[d]Λgo:d̥ʒm	Hiatus Resolution
	(Λ'go:)(d̥ʒm)	(ni'dΛ)('go:)(d̥ʒm)	Stress
	(-'go:)(d̥ʒm)	(n-'dΛ)('go:)(d̥ʒm)	Syncope
	[go:'d̥ʒm]	[n'dΛ'go:'d̥ʒm]	SR

- A plausible analysis:

(6)	ndΛ	go:d̥ʒm	‘He hangs’
		go:d̥ʒm	‘I hang’

New Grammar

- New syncope in the two-sided open syllable.

VC **V** CV



VC_CV

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VC_CV

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

- (7)
- | | | | |
|----|---------|------------|----------------|
| a. | mkɪzɪn | mkɪz_n-ɔn | shoe |
| b. | a:nɔk | a:n_k-ɔg | brown thrasher |
| c. | wa:gʊʃ | wa:g_ʃ-ɔg | fox |
| d. | pwa:gɔn | pwa:g_n-ɔg | pipe |

- (7) a. mkɪzɪn mkɪz_ɪn-ɔn shoe
b. a:nɔk a:n_k-ɔg brown thrasher
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- New syncope blocked elsewhere.

- (8) a. mi:knʊd mi:knʊd-ɔn pants
b. mi:ʒmɪn mi:ʒmɪn-ɔn acorns
c. a:bdʒɪtʃgɔn a:bdʒɪtʃgɔn-ɔn tool
d. dʒi:gdɔbgɔn dʒi:gdɔbgɔn-ɔn broom

Origin of New Syncope

- New Odawa matches Old Odawa here.

(9)	‘shoe’	‘shoes’	
	/mΛkɪzɪn/	/mΛkɪzɪn-Λn/	UR
	(mΛ'kɪ)('zɪn)	(mΛ'kɪ)(zɪ'nΛn)	Stress
	(m_ 'kɪ)('zɪn)	(m_ 'kɪ)(z_ 'nΛn)	Syncope
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	(m_ 'kɪ)('zɪn)	(m_ 'kɪ)(z_ 'nΛn)	Syncope
	[m'kɪ'zɪn]	[m'kɪz'nΛn]	SR
(10)	‘tool’	‘tools’	
	/a:bΛd̥zɪtʃɪgΛn/	/a:bΛd̥zɪtʃɪgΛn-Λn/	UR
	('a:)(bΛ'd̥zɪ)(tʃɪ'gΛn)	('a:)(bΛ'd̥zɪ)(tʃɪ'gΛ)('nΛn)	Stress
	('a:)(b_ 'd̥zɪ)(tʃ_ 'gΛn)	('a:)(b_ 'd̥zɪ)(tʃ_ 'gΛ)('nΛn)	Syncope
	['a:b'd̥zɪtʃ'gΛn]	['a:b'd̥zɪtʃ'gΛ'nΛn]	SR

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- 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 Old Odawa delete in New Odawa.

(11)	‘If he misses him’	‘Drums’	
	/me:dʌs I n-a:-d/	/de:we:ʔig ʌ n-ʌn/	UR
	(‘me:)(dʌ’sɪ)(‘na:d)	(‘de:)(‘we:)(ʔi’gʌ)(‘nʌn)	Stress
	(‘me:)(d_’sɪ)(‘na:d)	(‘de:)(‘we:)(ʔ_’gʌ)(‘nʌn)	Syncope
	[‘me:d’s I ‘na:d]	[‘de:’we:ʔ’g ʌ ‘nʌn]	SR

Syncope has Spread

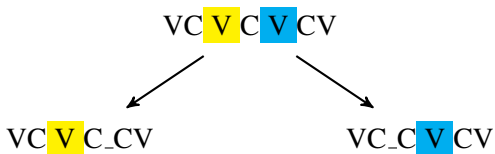
- Vowels that never deleted in Old Odawa delete in New Odawa.

(11)	‘If he misses him’	‘Drums’	
	/me:dΛs I n-a:-d/	/de:we:ʔig Λ n-Λn/	UR
	(‘me:)(dΛ’sI)(‘na:d)	(‘de:)(‘we:)(ʔI’gΛ)(‘nΛn)	Stress
	(‘me:)(d_’sI)(‘na:d)	(‘de:)(‘we:)(ʔ_’gΛ)(‘nΛn)	Syncope
	[‘me:d’s I ‘na:d]	[‘de:’we:ʔ’g Λ ‘nΛn]	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-Λn* ‘drums’.

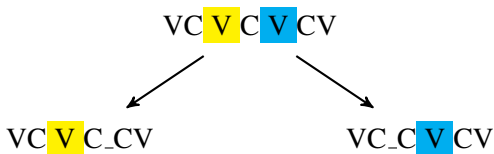
Deletion Sites Vary

- Free variation if two vowels are in the two-sided open syllable.

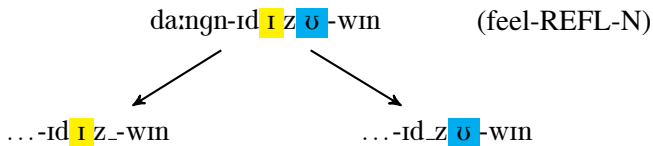


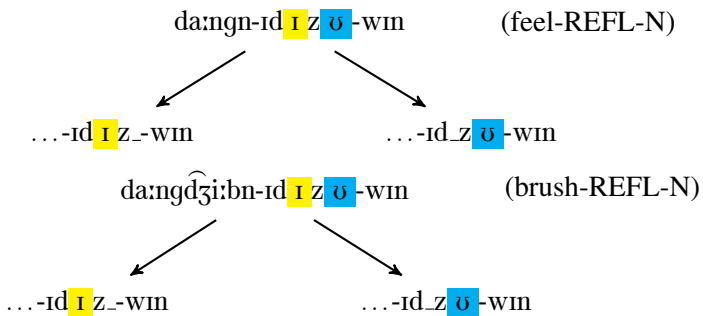
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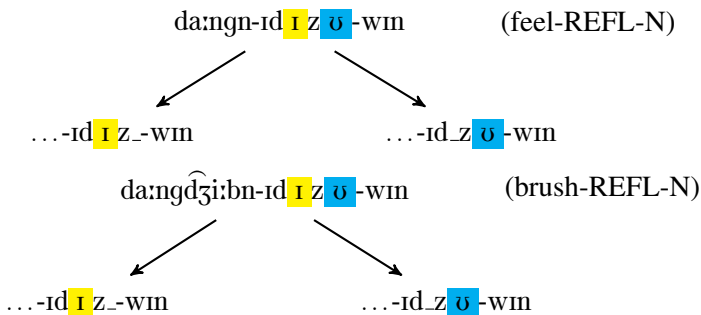
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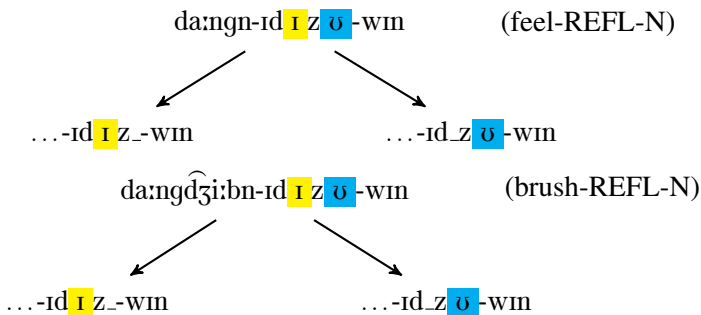
- *VC_C_CV







- We don't see ...-id_z_-wim



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- A foot-based account (Valentine 2001) will not permit variation.

Optional at Left Edge

- $nd\Lambda- + CVCV: = nd\Lambda C \mathbf{V} CV:$

Optional at Left Edge

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

(12)

Non-deletion	Deletion	Old Form
a. $nd\Lambda-3$ I da:ba:n-a:	$nd\Lambda-3_da:ba:n-a:$	$n_-[d]i3_da:ba:n-a:$
b. $nd\Lambda-n$ I ze:kwe:	$nd\Lambda-n_ze:kwe:$	$n_-[d]in_ze:kwe:$
c. $gdo:k-$ \Lambda 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'

Restructuring Summary

- Phonetic reduction became opaque deletion in the 1930s.

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- Phonetic reduction became opaque deletion in the 1930s.
- Children did the best they could.
 - They leveled to a single member of the paradigm,
 - Recut prefixes,
 - Developed a transparent syncope process.

Theoretical Implications

Conclusion

- Unstressed vowel deletion is opaque.
 - It destroys the foot structure that guides it.
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- Serial phonology can represent opacity (Chomsky and Halle 1968, McCarthy 2008).
 - Foot structure can be assigned at stage $n \dots (\sigma'\sigma)$
 - That structure can then be destroyed at stage $n+k \dots (-'\sigma)$

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- Serial phonology can represent opacity (Chomsky and Halle 1968, McCarthy 2008).
 - Foot structure can be assigned at stage $n \dots (\sigma'\sigma)$
 - That structure can then be destroyed at stage $n+k \dots (-'\sigma)$
- In parallel phonology there are only inputs and outputs (Prince and Smolensky 1993/2004).
 - It is impossible to set up stages for individual processes.
 - It is thus impossible to make structure that is later destroyed.

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- It is tempting to analyze opacity with independent processes that can hide generalizations.
- Restructuring in Odawa indicates that children can't perform this analysis.
- Children prefer surface oriented grammars.
- Phonology should also be unable to use independent processes.
- Opacity should always be given a surface-based explanation.

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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.

(13)

	m	Λ	k	ɪ	z	ɪ	n	UR
	m		k	ɪ	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: *ndΛ-d̂ʒe:pɪz* ‘I am lively’ vs *d̂ʒe:pzi-d* ‘if he is lively’.

(14)		d̂ʒ	e:	p	I	z	I		New Odawa UR
		d̂ʒ	e:	p		z	I	d	Old Odawa SR
	ndo:	d̂ʒ	e:	p	I	z			Old Odawa SR

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- E.g: $nd\Lambda-d\hat{d}z\epsilon:p\bar{I}z$ ‘I am lively’ vs $d\hat{d}z\epsilon:pz\bar{I}-d$ ‘if he is lively’.

(14)		$\hat{d}z$	e:	p	I	z	I		New Odawa UR
		$\hat{d}z$	e:	p		z	I	d	Old Odawa SR
	ndo:	$\hat{d}z$	e:	p	I	z			Old Odawa SR

- Also:

(15)	Unaffixed	Suffixed	
	$nd\Lambda-bi:ndge:b\bar{I}z$	$bi:ndge:bz\bar{U}-d$	zip inside
	$nd\Lambda-bk\bar{U}d\bar{\Lambda}b$	$bk\bar{U}db\bar{I}-d$	perch
	$nd\Lambda-nd\hat{z}m\bar{\Lambda}z$	$nd\hat{z}mz\bar{U}-d$	dispute