Rhythmic Syncope and Phonological Restructuring

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April 1, 2014 - USC

Introduction

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- Opacity is more than a problem for OT.

- It is a problem for analysis.

- Language change can reveal how learners (fail to) tackle this problem.

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Introduction

- "Odawa has added a rule fairly recently which deletes unstressed vowels (a.k.a. rhythmic syncope, DAB). . . . It would be interesting to speculate about the ultimate impact of this rule on Odawa phonology." (Kaye 1974:148-9)
- The data is in for Odawa and several similar languages.
- Rhythmic syncope systems undergo radical restructuring.

Outline

- Transitional Odawa extended phonetic reduction to deletion.[1]
    - This created rhythmic syncope for language learners.

- New Odawa promptly restructured with:
    - a levelled lexicon,
    - reanalyzed prefixes,
    - transparent syncope.

- Rhythmic syncope has triggered restructuring elsewhere.

- Phonological theories should reflect rhythmic syncope's instability.

Transitional Odawa
–1930s Adults–

Rhythmic Syncope

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

- $(\sigma\ \acute{\sigma})$ $\rightarrow$ $(\_ \ \acute{\sigma})$
  (nɪká)   (n̩ká) 'goose'

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- $(\sigma\ \acute{\sigma}) \quad \rightarrow \quad (\_\ \acute{\sigma})$
  (nɪkʌ́)   (n̩kʌ́) 'goose'
- Though it is severe reduction at this phase, will treat it as categorical deletion.

    - Assumed that learners did so too.

Paradigmatic Alternations

'book'	'my book'	
/mʌzɪnʌʔɪgʌn/	/nɪ-mʌzɪnʌʔɪgʌn/	UR
(mʌzí)(nʌʔí)(gʌ́n)	(nɪmʌ́)(zmʌ́)(ʔɪgʌ́n)	Stress
(m‿zí)(n‿ʔí)(gʌ́n)	(n‿mʌ́)(z‿nʌ́)(ʔ‿gʌ́n)	Syncope
[mzínʔígʌ́n]	[nmʌ́znʌ́ʔgʌ́n]	SR

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

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- An intermediate representation guides deletion.
- Harmonic Serialism is very apt for this (McCarthy 2008).
- After stress constraints are satisfied, Eval does the following:

(mʌzí)(nʌʔí)(gán)	*WEAKV	FTBIN	MAX-V
a. ☞ (mzín)(ʔí)(gán)		***	**
b. (mʌzí)(nʌʔí)(gán)	**!	*	

- Stress-before-deletion is impossible in Classic OT (Kager 1997, Blumenfeld 2006).
- Classic OT tries to make footing and syncope apply simultaneously.
- Unstressed vowel avoidance spurs FTBIN violations.
  - But there are many ways to foot a word into degenerate feet.

mʌzɪmʌʔɪgʌn	*WEAKV	FTBIN	MAX-V
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b. (mʌzí)(nʌʔí)(gʌ́n)	**!	*	
c. (mʌ́)(zí)(nʌ́)(ʔí)(gʌ́n)		****!*	
d. ☹ (mʌ́z)(nʌ́ʔ)(gʌ́n)		***	**

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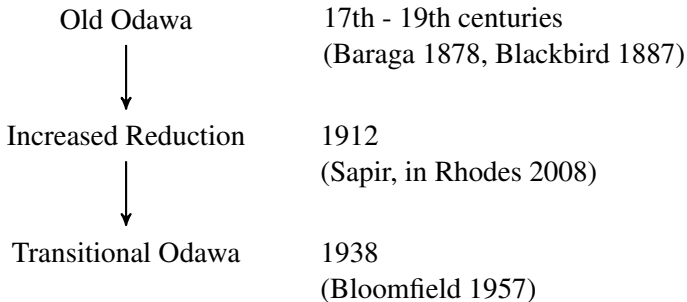
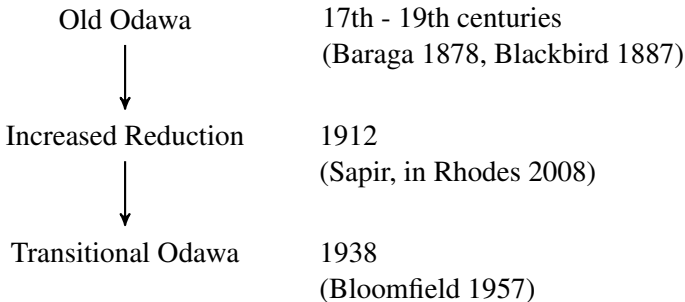| mʌzɪmʌʔɪgʌn	*WEAKV	FTBIN	MAX-V
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- In HS, (d) is not gradually derivable from an iambic parse.
- In HS, (c) may never be generated (McCarthy 2008:519, though Kimper 2011:444, McCarthy 2008:525).

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Reduction → Deletion

Old Odawa   17th - 19th centuries

(Baraga 1878, Blackbird 1887)

Increased Reduction   1912

(Sapir, in Rhodes 2008)

Transitional Odawa   1938

(Bloomfield 1957)

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

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Transitional Odawa	1938
	(Bloomfield 1957)

- "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

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-
	Unprefixed	Prefixed	
a.	d‿ngíʃk‿w-áː-d	n‿-dʌ́ng‿ʃkʌ́w-áː	kick
b.	d‿gʊ́n‿géː	n‿-dʌ́g‿nígéː	mix things
c.	b‿zʊ́géːʃín	n‿-bíz‿géːʃín	stumble

New Lexicon

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	New Unprefixed	New Prefixed	
a.	dngɪʃkw-aː-d	ndʌ-dngɪʃkw-aː	kick
b.	dgʊngeː	ndʌ-dgʊngeː	mix things
c.	bzʊgeːʃɪn	ndʌ-bzʊgeːʃɪn	stumble

	T. Unprefixed	T. Prefixed	
a.	d̠ngíʃk̠w-áː-d	n̠-dʌ́ng̠ʃkʌ́w-áː	kick
b.	d̠gón̠géː	n̠-dʌ́g̠nígéː	mix things
c.	b̠zúgéːʃín	n̠-bíz̠géːʃín	stumble

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

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New Prefixes

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

- 'He hangs'   'I hang'
/ʌgoːd͡ʒɪn/	/nɪ-ʌgoːd͡ʒɪn/	UR
—	nɪ[d]ʌgoːd͡ʒɪn	Hiatus Resolution
(ʌgóː)(d͡ʒín)	(nɪdʌ́)(góː)(d͡ʒín)	Stress
(‿góː)(d͡ʒín)	(n‿dʌ́)(góː)(d͡ʒín)	Syncope
[góːd͡ʒín]	[ndʌ́góːd͡ʒín]	SR

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  (˰góː)(d͡ʒín)   (n˰dʌ́)(góː)(d͡ʒín)   Syncope
  [góːd͡ʒín]   [ndʌ́góːd͡ʒín]   SR

- A plausible analysis (repeatable for [ɪ, ʊ], see Bowers 2012; 2013):

- | | goːd͡ʒɪn | 'He hangs' |
  | ndʌ | goːd͡ʒɪn | 'I hang' |

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New Grammar

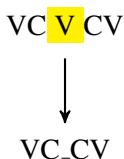- New syncope is phonotactically controlled.
  - "Two-sided open syllable" (Kuroda 1967)

<div align="center">

VC <mark>V</mark> CV

↓

VC‗CV

</div>
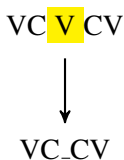
- Delete if the cluster is ok

New Grammar

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  - "Two-sided open syllable" (Kuroda 1967)

$$VC\ \boxed{V}\ CV$$

$$\downarrow$$

$$VC\_CV$$

- Delete if the cluster is ok
- No reference to stress is needed.

New Deletion Data

- a. mkɪzɪn   mkɪz‿n-ʌn   shoe
  b. aːnʌk   aːn‿k-ʌg   brown thrasher
  c. waːgʊʃ   waːg‿ʃ-ʌg   fox
  d. pwaːgʌn   pwaːg‿n-ʌg   pipe

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- New syncope blocked elsewhere.

- a. miːknʊd   miːknʊd-ʌn   pants
  b. miːʒmɪn   miːʒmɪn-ʌn   acorns
  c. aːbd͡ʒɪtʃgʌn   aːbd͡ʒɪtʃgʌn-ʌn   tool
  d. d͡ʒiːgdʌbgʌn   d͡ʒiːgdʌbgʌn-ʌn   broom

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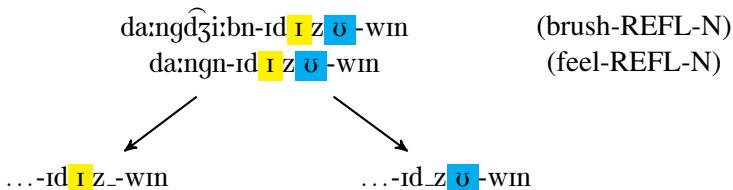## Variation Predicted

- Free variation if two vowels are in the deletion environment (Bowers 2012).

<div align="center">

VC V C V CV

VC V C_CV   VC_C V CV

</div>

- *VC_C_CV

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Variation Observed

da:ngd͡ʒiːbn-ɪd ɪ z ʊ -wɪn   (brush-REFL-N)

da:ngn-ɪd ɪ z ʊ -wɪn   (feel-REFL-N)

. . .-ɪd ɪ z -wɪn   . . .-ɪd z ʊ -wɪn
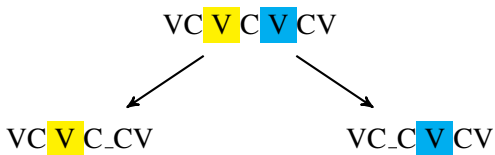
- We don't see . . .-ɪd z -wɪn
- Transitional Odawa did not have this variation.

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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- ∴ Conjecture: New Odawa was a response to Transitional Odawa.
    - Leveling to a single member of the paradigm,
    - Recut prefixes,
    - Development of phonotactically conditioned syncope.

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]   [éksámlí]   SR

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21

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- "It is simply impossible for a language to have evolved as quickly as the evidence seems to imply" (Koch 1995).

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Slavic - Havlík's Law

- Jers ([ɪ, ʊ]) deleted in right-to-left trochees (V. Kiparsky 1979).

- 'hermit-acc.sg'   'hermit-nom.sg'

/otʊʃʲɪlit͡sʲ-a/	/otʊʃʲɪlit͡sʲ-ɪ/	UR
(ótʊ)(ʃʲílɪ)(t͡sʲá)	(ó)(tʊ́ʃʲɪ)(lít͡sʲɪ)	Stress
(ót_)(ʃʲíl_)(t͡sʲá)	(ó)(tʊ́ʃʲ_)(lít͡sʲ_)	Syncope
(ót)(ʃʲél)(t͡sʲá)	(ó)(tóʃʲ)(lét͡sʲ)	Lowering
[ótʃʲélt͡sʲá]	[ótóʃʲlét͡sʲ]	SR

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Slavic - Havlík's Law

- Multiple vowel/zero alternations are the hallmark of rhythmic syncope.

- "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 . . .

- Britonnic (Jackson 1953).
- Gallo-Romance (Pope 1952, Rickard 1989, Jacobs 2004).
- Mandaic (Malone 1997 Haberl 2009).
- Potawatomi (Hockett 1948:5).
- Unami (Goddard 1979; 1982).
- Kannada (?) (Bright ?1970)

Tonkawa - Recoverable 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
(nétt̩)(lóʔs)	(kénn̩)(táloʔ)	Syncope and Lengthening
[nétt̩lóʔs]	[kénn̩táloʔ]	SR

- Pass an underlying mora from a weak vowel to a consonant.

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Tonkawa - Recoverable Rhythm

- This could be done in Classic OT.

kenetaloʔ	MAX-μ	*WEAKV	ID-μ
a. ☞ (kénṇ)(táloʔ)		*	*
b. (kéne)(táloʔ)		**!	
c. (kén)(táloʔ)	*!	*	

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kenetaloʔ	MAX-μ	*WEAKV	ID-μ
a. ☞ (kénn̩)(táloʔ)		*	*
b. (kéne)(táloʔ)		**!	
c. (kén)(táloʔ)	*!	*	

- Recoverable metrical structure → no restructuring.
- Gradient syncope is also stable (Munsee: Goddard 1979; 1982, Macushi: Hawkins 1950, Carson 1982, Abbott 1991).
- Optional syncope is also stable (Classical Latin: Jacobs 2004, Uspanteko: Bennett and Henderson 2013).

Aguaruna

Aguaruna - Description

- Descriptive analysis (Payne 1990):

    - "Odd-numbered" vowels delete.

        - Rhythmic syncope in left-to-right iambs?

    - Vowels do not delete in first syllable.
    - Vowels always delete when word-final.

- Cast as synchronic rhythmic syncope in McCarthy (2008).

Aguaruna - Data

'clay.pot'	'clay.pot-pos-2*'	'clay.pot-pos-2-acc'	
/it͡ʃinaka/	/it͡ʃinaka-ŋu-mi/	/it͡ʃinaka-ŋu-mi-na/	UR
(it͡ʃí)(náka)	(it͡ʃí)(naká)(ŋúmi)	(it͡ʃí)(naká)(ŋumí)na	Stress
(it͡ʃí)(nák‿)	(it͡ʃí)(n‿ká)(ŋúm‿)	(it͡ʃí)(n‿ká)(ŋ‿mí)n‿	Syncope
it͡ʃinak‿	it͡ʃin‿kaŋum‿	it͡ʃin‿kaŋ‿min‿	SR

Aguaruna - Alternatives

- No prefixed forms to show the "vowel ripple".
- Alternations are concentrated in stacked monosyllabic suffixes.
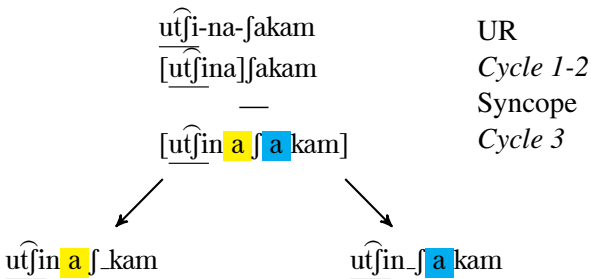- This could be cyclic VCVCV → VC_CV.

Aguaruna - Cyclicity

/it͡ʃinaka-ŋu-mi-na/	UR	'clay pot-pos-2-acc'
[it͡ʃin a ka]ŋumina	*Cycle 1*	
[it͡ʃin _ ka]ŋumina	Syncope	
[it͡ʃinkaŋu]mina	*Cycle 2*	
—	Syncope	
[it͡ʃinkaŋ u mi]na	*Cycle 3*	
[it͡ʃinkaŋ _ mi]na	Syncope	
[it͡ʃinkaŋmina]	*Cycle 4*	
[it͡ʃinkaŋmin _]	Apocope	
—	Syncope	
it͡ʃin_kaŋ_min_	SR	(it͡ʃí)(n_ká)(ŋ_mí)n_

- When affixes are short, we mimic iambic syncope.

Aguaruna - Variation

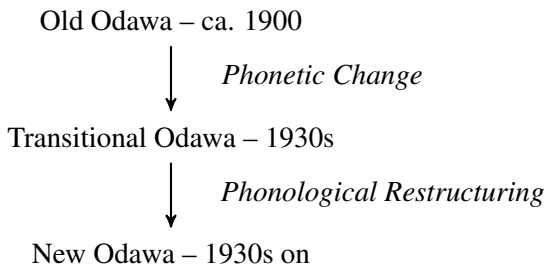- But when affixes are long, free variation results, as observed in 'to the child also'.

ut͡ʃi-na-ʃakam	UR
[ut͡ʃina]ʃakam	*Cycle 1-2*
—	Syncope
[ut͡ʃin a ʃ a kam]	*Cycle 3*

ut͡ʃin a ʃ_kam   ut͡ʃin_ʃ a kam

Aguaruna - Problems

- A recent dictionary (Deicat 1996) is full of surprises.

- Words with no deletion:
    - dikapamaintʃu 'uncountable' *(diká)(p‿máintʃ)‿
    - apapahua 'bird species' *(apá)(p‿húa)

- Words with deletion in "even" positions:
    - akatʃumtai 'belt' *(aká)(tʃ‿má)(tái)
    - nahaimitkat 'condemn' *(nahái)(m‿tV́)(kát)

- Words with deletion of peninitial vowels:
    - iʃpiŋ 'tree species' *(iʃV́)(píŋ)
    - juʃmin 'diver' *(juʃV́)(mín)

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- Approximately one word does not conform for every five words that do.

Implications and Conclusion

Summary

Old Odawa – ca. 1900

Phonetic Change

Transitional Odawa – 1930s

Phonological Restructuring

New Odawa – 1930s on

Discussion

- If a theory permits a phonological pattern,
- When phonetic change sets it up as the unique analysis,
- The phonetic pattern should be faithfully phonologized (Kiparsky 1995).

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- When phonetic change sets it up as the unique analysis,
- The phonetic pattern should be faithfully phonologized (Kiparsky 1995).
- Harmonic Serialism generates rhythmic syncope.
- The observed rapid changes thus violate our expectation.

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- If a theory permits a phonological pattern,
- When phonetic change sets it up as the unique analysis,
- The phonetic pattern should be faithfully phonologized (Kiparsky 1995).
- Harmonic Serialism generates rhythmic syncope.
- The observed rapid changes thus violate our expectation.
- Maybe there is something wrong with the learners?

Learning - HS

- A learner with HS must be stopped from the right analysis.
- The right analysis = correct URs and correct grammar.
- Nothing particularly marked about the grammar.
- Perhaps problem with learners is that they are bad at UR discovery.

Learning - HS

- A learner with HS must be stopped from the right analysis.
- The right analysis = correct URs and correct grammar.
- Nothing particularly marked about the grammar.
- Perhaps problem with learners is that they are bad at UR discovery.
- I.e. learners could have phonologized Transitional Odawa.
- They just had the wrong URs.
- So they were forced to New Odawa.

Abstract URs

- To phonologize Transitional Odawa, URs need all the vowels.
  - But any one surface form only has a subset of vowels.

- Learners would have to build URs from several surface forms.

	m	ʌ	k	ɪ	z	ɪ	n	UR
	m		k	ɪ	z	ɪ	n	SR 1
n-	m	ʌ	k		z	ɪ	n	SR 2

- In some theories, URs are identical to surface forms.
  (Albright 2002; 2010, Pater, Staubs, Jesney, Smith 2012).
- This would explain the leveling to unprefixed forms.
  - Unprefixed forms were selected as the URs.

Abstract URs Motivated

- Over 400 words in Rhodes (1985a) need abstract URs.

Unsuffixed	Suffixed		
ndʌ-d͡ʒeːpɪz	d͡ʒeːpzɪ-d	/d͡ʒeːpɪzɪ/	be lively
ndʌ-biːndgeːbɪz	biːndgeːbzʊ-d	/biːndgeːbɪzɪ/	zip inside
ndʌ-bkʊdʌb	bkʊdbɪ-d	/bkʊdʌbɪ/	perch
ndʌ-nd͡ʒɪnʌz	nd͡ʒɪmzʊ-d	/nd͡ʒɪnʌzʊ/	dispute

- Final vowels are unpredictable.
    - Must be in URs.

- Yet the UR is never fully faithfully realized.

Failing Correctly

- HS-learner must permit abstract URs, but fail to get right ones.
  - With right URs, ranking for rhythmic syncope is inevitable.
  - Thoughts invited on how to ensure failure here!

Failing Correctly

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- Abstraction and failure can be done with parallel OT.

- Learner with parallel OT cannot represent rhythmic syncope.
  - No need to stop short of right UR-grammar combination.
  - Let's look at how the URs might be learned to match the observed changes.

Transitional Odawa   New Odawa   Typology   Aguaruna   **Implications and Conclusion**   References
○○○○○   ○○○○○○○○   ○○○○○○   ○○○○○○   ○○○○○○●○○○○

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Conditions for Abstract URs

	Unsuffixed	Suffixed		
	ndʌ-d͡ʒeːpɪz̥	d͡ʒeːpzɪ-d	/d͡ʒeːpɪzɪ/	be lively
	ndʌ-biːndgeːbɪz̥	biːndgeːbzʊ-d	/biːndgeːbɪzɪ/	zip inside
	ndʌ-bkʊd͡ʌb	bkʊdbɪ-d	/bkʊd͡ʌbɪ/	perch
	ndʌ-nd͡ʒɪn͡ʌz	nd͡ʒɪmzʊ-d	/nd͡ʒɪn͡ʌzʊ/	dispute

- Abstract URs appear where apocope and new syncope interact.

'I am lively'	'If he is lively'	
/ndʌ-d͡ʒeːpɪzɪ/	/d͡ʒeːpɪzɪ-d/	UR
ndʌd͡ʒeːpɪz̥	—	Apocope
—	d͡ʒeːp̥zɪd	Syncope
[ndʌd͡ʒeːpɪz]	[d͡ʒeːpzɪd]	SR

Abstract Lexicon with OT

- Assume apocope and new syncope.
- Assume learners decided unprefixed forms must be generated.

	d͡ʒ	eː	p	ɪ	z	ɪ		New Odawa UR
	d͡ʒ	eː	p		z	ɪ	d	T. Odawa SR
ndoː	d͡ʒ	eː	p	ɪ	z			T. Odawa SR

- Penult vowels never hurt generation of unprefixed forms.

   ✓ /d͡ʒeːpɪzɪ-d/ → d͡ʒeːpzɪ-d

- And they helped generation of prefixed forms.

   ✓ /ndʌ-d͡ʒeːpɪzɪ/ → ndʌ-d͡ʒeːpɪz

- Abstract UR is good.

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Abstract Lexicon with OT

- Assume apocope and new syncope.
- Assume learners decided unprefixed forms must be generated.

	d͡ʒ	eː	p	**ɪ**	z	**ɪ**		New Odawa UR
	d͡ʒ	eː	p		z	**ɪ**	d	T. Odawa SR
ndoː	d͡ʒ	eː	p	**ɪ**	z			T. Odawa SR

- Penult vowels never hurt generation of unprefixed forms.

  ✓ /d͡ʒeːp **ɪ** zɪ-d/ → d͡ʒeːpzɪ-d

- And they helped generation of prefixed forms.

  ✓ /ndʌ-d͡ʒeːp **ɪ** zɪ/ → ndʌ-d͡ʒeːp **ɪ** z

- Abstract UR is good.
- *Learners took vowels from Transitional prefixed forms when they didn't hurt generation of unprefixed forms.*

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Concrete Lexicon with OT

- In all other environments, vowels from prefixed forms hurt generation of unprefixed forms.

	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

- The abstract UR:

  X /mΛkɪzɪn/ → mΛk_zɪn

- The identity UR:

  ✓ /mkɪzɪn/ ⇒ mkɪzɪn

- Identity UR is good.

Summary of OT Learning

- Learners prioritized generating unprefixed forms.
- They had a terrible grammar.
    - All it could do was apocope and phonotactic syncope.
- To always generate unprefixed forms, they had to change the lexicon.
    - Threw out nearly all vowels present only in prefixed forms.
    - Hence the massive leveling of alternations.

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- Learners prioritized generating unprefixed forms.
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- To always generate unprefixed forms, they had to change the lexicon.
    - Threw out nearly all vowels present only in prefixed forms.
    - Hence the massive leveling of alternations.
- The only thing wrong with learners is that they use OT.

Conclusion

- Learners appear to reject rhythmic syncope systems.
- Theories that can generate rhythmic syncope need to be restrained.

Conclusion

- Learners appear to reject rhythmic syncope systems.
- Theories that can generate rhythmic syncope need to be restrained.
- When documenting a synchronic phenomenon, it is crucial to consider diachrony.
    - Theories of competence/learning can be tested against historical facts.

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Origin of New Syncope

- New Odawa matches Old Odawa here.

(1) 'shoe'   'shoes'

   /mʌkɪzɪn/   /mʌkɪzɪn-ʌn/   UR
   (mʌˈkɪ)(zín)   (mʌˈkɪ)(zɪnʌ́n)   Stress
   (m‿ˈkɪ)(zín)   (m‿ˈkɪ)(z‿nʌ́n)   Syncope
   [mˈkɪzín]   [mˈkɪznʌ́n]   SR

(2) 'tool'   'tools'

   /aːbʌd͡ʒɪt͡ʃɪgʌn/   /aːbʌd͡ʒɪt͡ʃɪgʌn-ʌn/   UR
   (ˈaː)(bʌˈd͡ʒɪ)(t͡ʃɪgʌ́n)   (ˈaː)(bʌˈd͡ʒɪ)(t͡ʃɪgʌ́)(nʌ́n)   Stress
   (ˈaː)(b‿ˈd͡ʒɪ)(t͡ʃ‿gʌ́n) (ˈaː)(b‿ˈd͡ʒɪ)(t͡ʃ‿gʌ́)(nʌ́n)   Syncope
   [ˈaːbˈd͡ʒɪt͡ʃˈg‿n]   [ˈaːbˈd͡ʒɪt͡ʃˈg‿nʌ́n]   SR

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'
  /meːdʌs ɪ n-aː-d/   /deːweːʔɪg ʌ n-ʌn/   UR
  (méː)(dʌsí)(náːd)   (déː)(wéː)(ʔɪgʌ́)(nʌ́n)   Stress
  (méː)(d‿sí)(náːd)   (déː)(wéː)(ʔ‿gʌ́)(nʌ́n)   Syncope
  [méːds í náːd]   [déːwéːʔg ʌ́ nʌ́n]   SR

- The [ds] and [ʔg] clusters are now simplified to [s] and [g].

- Deletion observed: *meːs‿n-aː* 'miss him' and *deːweːg‿n-ʌn* 'drums'.

Optional at Left Edge

- ndʌ- + CVCVː = ndʌC V CVː
- V deletes optionally.

	Non-deletion	Deletion	Old Form
a.	ndʌ-ʒ ɪ daːbaːn-aː	ndʌ-ʒ‿daːbaːn-aː	n‿-[d]ɪʒ‿daːbaːn-aː
b.	ndʌ-n ɪ zeːkweː	ndʌ-n‿zeːkweː	n‿-[d]m‿zeːkweː
c.	gdoː-k ʌ waːteːʃɪn	gdoː-k‿waːteːʃɪn	g‿-[d]ʌk‿waːteːʃɪn

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

What About Arabic?

- Palestinian Arabic has an opaque stress-syncope interaction (Brame 1974, Kenstowicz 1980, Kiparsky 2000)

/fihim-na/	/fihim-∅-na/	UR
[fihímna]	[fíhim]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 (*fíhim-∅* 'he understood')