

# The interaction of Dorsey's Law and stress

## A non-foot-based approach

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CUNY Phonology Forum Conference on the Foot

# Dorsey's Law

$$\begin{bmatrix} -\text{son} \\ -\text{voice} \end{bmatrix} \begin{bmatrix} -\text{syl} \\ +\text{son} \end{bmatrix} \begin{bmatrix} +\text{syl} \end{bmatrix} \rightarrow 1 \ 3 \ 2 \ 3$$

kwe → kewe

kri → kiri

pn̩ → p̩n̩

## Basic stress in Winnebago

### Bimoraic words

- a.  $\sigma_{\mu\mu}$   
zíi 'yellow, orange'  
níi 'water'  
sgáa 'white'  
wáa 'snow'
- b.  $\sigma_{\mu}\sigma_{\mu}$   
hiwáx 'to ask'  
hosgáč 'playground'  
raǰóx 'to break in the mouth'  
wajé 'dress'

## Basic stress in Winnebago

Trimoraic words:

- c.  $\sigma\mu\mu\sigma\mu$   
čiinák 'town'  
booká 'to knock over'  
haag-rá 'the rear part'  
hąąhé 'night'
- d.  $\sigma\mu\sigma\mu\sigma\mu$   
wanigík 'bird'  
hipirák 'belt'  
waxirí 'to squash'  
giřiré 'to help'

## Basic stress in Winnebago

### Quadrimoraic words:

- e.  $\sigma\mu\mu\sigma\mu\sigma\mu$   
xʃaanáne 'yesterday'  
taaníʒu 'sugar'  
aačgánək 'to lift out'  
həhéhé-re 'last night'
- f.  $\sigma\mu\sigma\mu\sigma\mu\sigma\mu$   
wiščjégéga 'Hare'  
hinubáħə 'second'

## Regular stress in DL words

- a. [CVCV́]  
keré 'to leave returning'  
šoróš 'to be on the way returning'  
xurúč 'to inch along'
- b. [CVCV]CV́  
šawažók 'you mash'  
karahe 'to be on the way returning'  
xerehí 'to boil'
- c. [CVCV]CV́CV  
šawazókjĭ 'you mash hard'  
kerejŭsep 'Black Hawk'  
parağŭčge 'in formation'  
xorojĭke 'hollow'

## Regular stress in DL words

d. CV[CVCV́]

hiperés 'to know'

gisaṅá 'to remove'

rukeréx 'tattoo'

e. CVCV[CVCV́]

hojisaṅa 'recently'

hirupíni 'to twist'

hačakére 'with difficulty'

## Regular stress in DL words

- f. CVV[CVCV]  
maąšárač 'you promise'  
boopéres 'to sober up'  
haapúruč 'common elder'
- g. [CVCV][CVCV]  
poropóoro 'spherical'  
kirikírix 'thick' (as fluid)  
kerepána 'unit of ten'  
šuruxúruk 'you earn'

## Exceptional stress in DL words

- a. CV[CVCV]C'V  
hošawazá  
hikorohó  
hikuruní  
'you are ill'  
'to prepare'  
'tangled'
- b. CV[CVCV][C'VCV]  
wakiripáras  
gikaṅaṅaṅaṅ  
wakirikírik  
'flat insect'  
'shiny'  
'slipper elm'
- c. CV[CVCV][C'VCV] [CVCV]  
wakiripóropòro  
'spherical insect'

# Serial restructuring

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- Foot type: L-to-R iamb, noninitial
- Problem: incorrect empirical predictions (\*sawažokjí, \*šuruxurúk) (Miner 1989)

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- Foot type: L-to-R trochee, initial foot extrametrical (Alderete 1995), L-to-R iamb, postaccentuating (Broselow 2008)
- Problem: the analysis depends on the assumption that, in some cases, stress falls on dependants

## Two types of ordering

Feeding ordering in Winnebago (epenthetic vowel visible to stress):

Underlying	/xroʃike/
DL	xoroʃike
Stress	xoroʃíke
Output	[xoroʃíke]

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Counterfeeding ordering in Winnebago (epenthetic vowel invisible to stress):

Underlying	/hikroho/
Stress	hikrohó
DL	hikorohó
Output	[hikorohó]

## Rule sandwiching

Rule sandwiching in Mohawk (Bye 2001):

Underlying	/wak-njak-s/	/ $\Delta$ -k-r- $\Delta$ ?/
$\emptyset \rightarrow e/C\_CC$	wakenjaks	—
Penult stress	wa'kenjaks	' $\Delta$ kr $\Delta$ ?
$\emptyset \rightarrow e/C\_resonant$	—	' $\Delta$ ker $\Delta$ ?
Surface	[wa'kenjaks]	[' $\Delta$ ker $\Delta$ ?]

# Two rounds of Dorsey's Law

## DL1

Insert a vowel in rising sonority consonant clusters preceding initial/final nuclei.

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### **DL1**

Insert a vowel in rising sonority consonant clusters preceding initial/final nuclei.

### **DL2**

Insert a vowel in rising sonority consonant clusters.

## Rule sandwiching in Winnebago

Input	/šwažok/	/šwazokjǵ/	/hipres/	/hojisǻnǻ/	/mǻǻšrač/
DL1	šawažok	šawazokjǵ	hiperes	hojisǻnǻ	mǻǻšarač
Stress	šawažók	šawazókjǵ	hiperés	hojisǻnǻ	mǻǻšárač
DL2	—	—	—	—	—
Surface	[šawažók]	[šawazókjǵ]	[hiperés]	[hojisǻnǻ]	[mǻǻšárač]

## Rule sandwiching in Winnebago

Input	/krepn̩/	/hošwaza/	/wakripras/
DL1	kerep̩n̩	—	wakriparas
Stress	kereṕ̩n̩	hošwazá	wakripáras
DL2	—	hošawazá	wakiripáras
Output	[kereṕ̩n̩]	[hošawazá]	[wakiripáras]

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- Stressed syllables must have a high-sonority peak: Zabiče Slovene (Crosswhite 1999), Mokshan Mordwin (Kenstowicz 1994)
- Initial syllables must have low-sonority onsets: Mongolian (Ramsey 1987), Kuman (Lynch 1983, Blevins 1994), Mbabaram (Dixon 1991), Campidanian Sardinian (Bolognesi 1998)

## Strong positions in Winnebago

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- Initial syllables –psycholinguistically salient, phonologically salient in numerous languages
- Final syllables –statistically good predictors of stress in Winnebago (stress final in bimoraic and trimoraic words)
- Application of DL1 prevents consonant clusters preceding stressed vowels

## DL constraints

- DL1 - Positional constraints:  $[*\text{CRV}]/\sigma_1$   
 $\forall x, x$  is  $\sigma_1$ , and  $V$  is the syllable nucleus,  $V$  is not preceded by a rising sonority consonant cluster  
 $[\text{*CRV}]/\sigma_{\text{fin}} \forall x, x$  is  $\sigma_{\text{final}}$ , and  $V$  is the syllable nucleus,  $V$  is not preceded by a rising sonority consonant cluster

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 $[*\text{CRV}]/\sigma_{\text{final}} \forall x$ ,  $x$  is  $\sigma_{\text{final}}$ , and  $V$  is the syllable nucleus,  $V$  is not preceded by a rising sonority consonant cluster
- DL2 - global constraint:  $*\text{CRV}$   
 $\forall V$ ,  $V$  is the syllable nucleus,  $V$  is not preceded by a rising sonority consonant cluster

# Stress constraints

[μμú]

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[μμú]

\*EXTLAPSEL  $\gg$  AL-R(Stress,PWd)  $\gg$  AL-L(Stress,PWd) (based on Gordon 2002)

## Stress constraints


[μμί

\*EXTLAPSEL  $\gg$  AL-R(Stress,PWd)  $\gg$  AL-L(Stress,PWd) (based on Gordon 2002)

	μμμμ	*EXTLAPSEL	AL-R	AL-L
a.  μμίμ			*	**
b. μίμμ			**!	*
c. μμμί		*!		***


# DL1 in Stratal OT

## Stem Level

wakripras	$[\ast\text{CRV}]/\sigma_{\text{in}}$	$[\ast\text{CRV}]/\sigma_{\text{fin}}$	$[\mu\mu\mu]$	DEP-V	$\ast\text{CRV}$
a.  wa.kri.pá.ras				*	*
b. wa.ki.rí.pa.ras				$\ast! \ast$	
c. wa.kri.pa.ras			*!	*	*
d. wa.kri.prás		*!			**

## DL2 in Stratal OT

### Word Level:

	wakripáras	*CRV	IDENT(Stress)	DEP-V	[μμμί]
a. 	wakiripáras			*	*
b.	wakripáras	*!			
c.	wakiríparas		*!	*	

# Stratal OT

## Stem Level:

hošwaza	$[*CRV]/\sigma_{in}$	$[*CRV]/\sigma_{fin}$	$[\mu\mu\acute{\mu}]$	DEP-V	*CRV
a.  hošwazá					*
b. hošawáza				*!	

## Word Level:

hošwazá	*CRV	IDENT(Stress)	DEP-V	$[\mu\mu\acute{\mu}]$
a.  hošawazá			*	*
b. hošwazá	*!			
c. hošawáza		*!		

# Summary

- Rule sandwiching analysis splits Dorsey's Law into two processes: positionally restricted epenthesis (DL1), and global epenthesis (DL2)

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- Rule sandwiching analysis splits Dorsey's Law into two processes: positionally restricted epenthesis (DL1), and global epenthesis (DL2)
- Interaction of Dorsey's Law and stress in Winnebago can be analysed independently of conditions on foot well-formedness

# Thank you!