

The interaction of Dorsey's Law and stress. A non-foot based approach*

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1 Background

1.1 Dorsey's Law

$$(1) \quad \begin{array}{c} \left[\begin{array}{c} -\text{son} \\ -\text{voice} \end{array} \right] \\ 1 \end{array} \quad \begin{array}{c} \left[\begin{array}{c} -\text{syl} \\ +\text{son} \end{array} \right] \\ 2 \end{array} \quad \begin{array}{c} \left[+\text{syl} \right] \\ 3 \end{array} \quad \rightarrow 1 \ 3 \ 2 \ 3$$

kwe → kewe

kri → kiri

pna → paŋa

1.2 Stress in Winnebago¹

(2) Basic stress in Winnebago

Bimoraic words

- a. $\sigma_\mu\mu$
zǐi 'yellow, orange'
nǐi 'water'
sgáa 'white'
wáa 'snow'
- b. $\sigma_\mu\sigma_\mu$
hiwǎx 'to ask'
hosgáč 'playground'
rajóx 'to break in the mouth'
waǰé 'dress'

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¹All Winnebago data are from Miner (1979, 1989)

Trimoraic words:

- c. $\sigma_{\mu}\sigma_{\mu}$
 čiinák 'town'
 booká 'to knock over'
 haag-rá 'the rear part'
 haąhéhé 'night'
- d. $\sigma_{\mu}\sigma_{\mu}\sigma_{\mu}$
 wanigǵík 'bird'
 hipirák 'belt'
 waxirí 'to squash'
 gǵiré 'to help'

Quadrimoraic words:

- e. $\sigma_{\mu}\sigma_{\mu}\sigma_{\mu}$
 xjaanáne 'yesterday'
 taanǵžu 'sugar'
 aačgǵnək 'to lift out'
 haąhéhé-re 'last night'
- f. $\sigma_{\mu}\sigma_{\mu}\sigma_{\mu}\sigma_{\mu}$
 wiščǵigéga 'Hare'
 hinubǵhə 'second'

2 Stress in DL words

(3) 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'
 karahé 'to be on the way returning'
 xerehí 'to boil'
- c. [CVCV]CVCV́
 šawazókǵǵ 'you mash hard'
 kereǵǵsep 'Black Hawk'
 paraǵǵúčge 'in formation'
 xoroǵǵike 'hollow'

- d. CV[CVCV́]
 hiperés 'to know'
 gisaṅá 'to remove'
 rukeréx 'tattoo'
- e. CVCV[CVCV́]
 hojisaṅa 'recently'
 hirupíni 'to twist'
 hačakére 'with difficulty'
- f. CVV[CVCV́]
 maṣšarač 'you promise'
 boopéres 'to sober up'
 haapúruč 'common elder'
- g. [CVCV][CVCV́]
 poropóoro 'spherical'
 kirikíríx 'thick' (as fluid)
 kerepáṅa 'unit of ten'
 šuruxúruk 'you earn'

(4) Exceptional stress in DL words:

- a. CV[CVCV]CVCV́
 hošawazá 'you are ill'
 hikorohó 'to prepare'
 hikuruní 'tangled'
- b. CV[CVCV][CVCV́]
 wakiripáras 'flat insect'
 gikaṅakáṅaṅap 'shiny'
 wakirikírík 'slipper elm'
- c. CV[CVCV][CVCV́][CVCV]
 wakiripóropòro 'spherical insect'

3 Foot-based analyses

3.1 Serial restructuring

Restructuring principle (Hale and White Eagle, 1980), Domino Condition (Halle and Vergnaud, 1987)

- If the epenthetic syllable is inserted inside a constituent, that constituent, and all constituents to the right, are destroyed.
- Foot type: L-to-R iamb, noninitial
- Problem: incorrect empirical predictions (*sawažokjí, *šuruxurúk) (Miner, 1989)

Faithfulness to prosodic heads (Alderete, 1995; Broselow, 2008)

- Foot heads may not contain epenthetic material
- If the epenthetic syllable would be in the head position of a foot, it is not footed
- 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

4 Proposal

4.1 Rule sandwiching

(5) Two types of ordering:

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

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

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

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

(6) Rule sandwiching in Mohawk (Bye, 2001):

Underlying	/wak-njak-s/	/ʌ-k-r-ʌʔ/
∅→ e/C__CC	wakenjaks	—
Penult stress	wakénjaks	ʼʌkɾʌʔ
∅→ e/C__resonant	—	ʼʌkɛɾʌʔ
Surface	[wakénjaks]	[ʼʌkɛɾʌʔ]

(7) Two rounds of Dorsey's Law

a. **DL1**

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

b. **DL2**

Insert a vowel in rising sonority consonant clusters.

(8) Rule sandwiching in Winnebago

Input	/šwazók/	/šwazókj̃/	/hipres/	/hojísɔ̀nɔ̀/	/mɔ̀ɔ̀šɔ̀rɔ̀č/
DL1	šawažok	šawazokj̃	hiperes	hojísɔ̀nɔ̀	mɔ̀ɔ̀šɔ̀rɔ̀č
Stress	šawažók	šawazókj̃	hiperés	hojísɔ̀nɔ̀	mɔ̀ɔ̀šɔ̀rɔ̀č
DL2	—	—	—	—	—
Output	[šawažók]	[šawazókj̃]	[hiperés]	[hojísɔ̀nɔ̀]	[mɔ̀ɔ̀šɔ̀rɔ̀č]

Input	/krepɔ̀nɔ̀/	/hošwaza/	/wakripɔ̀ras/
DL1	kerepɔ̀nɔ̀	—	wakripɔ̀ras
Stress	kerepɔ̀nɔ̀	hošwazá	wakripáras
DL2	—	hošawazá	wakiripáras
Output	[kerepɔ̀nɔ̀]	[hošawazá]	[wakiripáras]

4.2 Positional prominence

Positional prominence effects – special phonotactic restrictions in prosodically salient positions (de Lacy, 2000, 2001; Parker, 2001; Smith, 2000, 2002) .

(9) Positional augmentation (Smith, 2000, 2002)

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

(10) Strong positions in Winnebago:

- 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)

4.3 Constraint-based framework

(11) Positional constraints in Winnebago

- a. $[*CRV]/\sigma_{in}$
 $\forall x, x$ is $\sigma_{initial}$, and V is the syllable nucleus, V is not preceded by a rising

sonority consonant cluster.

- b. $[*CRV]/\sigma_{fin} \vee x$, x is σ_{final} , and V is the syllable nucleus, V is not preceded by a rising sonority consonant cluster

(12) DL1 in Stratal OT

Stem Level

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

(13) DL2 in Stratal OT

Word Level:

wakripáras	$[*CRV]/\sigma$	IDENT(Stress)	DEP-V	$[\mu\mu\acute{\mu}]$
a. wakiripáras			*	*
b. wakripáras	*!			
c. wakiríparas		*!	*	

(14) Derivation of [hošawáza]

Stem Level:

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

Word Level:

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

5 Summary

- 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, or assumptions concerning the foot type

References

- Alderete, John. 1995. Faithfulness to prosodic heads. URL <http://roa.rutgers.edu/>, ms, University of Massachusetts.
- Blevins, Juliette. 1994. A place for lateral in the feature geometry. *Journal of Linguistics* 30:301–348.
- Bolognesi, Robert. 1998. The phonology of Campidanian Sardinian: A unitary account of a self-organizing structure. Doctoral Dissertation, University of Amsterdam.
- Broselow, Ellen. 2008. Stress-epenthesis interaction. In *Rules, constraints and phonological phenomena*, ed. Bert Vaux and Andrew Nevins, 121–149. Oxford: Oxford University Press.
- Bye, Patrik. 2001. Virtual Phonology. Rule sandwiching and multiple opacity in Northern Saami. Doctoral Dissertation, University of Tromsø.
- Crosswhite, Katherine M. 1999. Vowel reduction in Optimality Theory. Doctoral Dissertation, University of California, Los Angeles.
- Dixon, R. M. W. 1991. Mbabaram. In *Handbook of Australian languages*, ed. M.R.W. Dixon and B. J. Blake. Melbourne: Oxford University Press.
- Hale, Kenneth, and Josephine White Eagle. 1980. A preliminary metrical account of Winnebago stress. *International Journal of American Linguistics* 46:117–132.
- Halle, Morris, and Jean-Roger Vergnaud. 1987. *An essay on stress*. Cambridge, MA: MIT Press.
- Kenstowicz, Michael. 1994. Sonority-driven stress. Ms., MIT.
- de Lacy, Paul. 2000. Prosodic markedness in prominent positions. Ms., University of Massachusetts, Amherst.
- de Lacy, Paul. 2001. Markedness in prominent positions. In *Proceedings of the 1st HUMIT Student conference in language research. MIT Working Papers in Linguistics 40*, ed. O. Matushansky, A. Costa, J. Martin-Gonzalez, L. Nathan, and A. Szczegielniak. Cambridge, MA: MITWPL, 53–66.

- Lynch, John. 1983. On the Kuman 'liquids'. *Languages and linguistics in Melanesia* 14:98–112.
- Miner, Kenneth. 1979. Dorsey's law in Winnebago-Chiwere and Winnebago accent. *International Journal of American Linguistics* 45:25–33.
- Miner, Kenneth. 1989. Winnebago accent: the rest of the data. *Anthropological Linguistics* 31:148–172.
- Parker, Steve. 2001. Non-optimal onsets in Chamicuro: An inventory maximised in coda position. *Phonology* 18:361–386.
- Ramsey, S. Robert. 1987. *The languages of China*. Princeton, NJ: Princeton University Press.
- Smith, Jennifer. 2000. Prominence, augmentation, and neutralization in phonology. In *Proceedings of BLS 26*, ed. L. Conathan, J. Good, D. Kavitskaya, A. Wulf, and A. Yu, 247–257. Berkeley, CA: Berkeley Linguistics Society.
- Smith, Jennifer. 2002. Phonological augmentation in prominent positions. Doctoral Dissertation, University of Massachusetts, Amherst.