

## **Hocank (Winnebago) vowel epenthesis:**

### **A phonological re-examination in light of phonetic data**

Nancy Hall & Elica Sue, California State University Long Beach

This paper presents the first acoustic phonetic description of vowel epenthesis in the Siouan language Hocank (also known as Winnebago). Hocank epenthesis has received extensive theoretical attention, due to its typologically unusual conditioning environment and its complex and opaque interaction with accent placement (e.g., Hayes 1995). Although analyses often cite impressionistic reports that the epenthetic vowels have special pitch and duration properties, these claims have never been instrumentally tested. Our analysis of archival recordings finds that the epenthetic vowels do have shorter duration than lexical vowels, but do not have unusual pitch patterns.

#### **Impressionistic descriptions**

'Dorsey's Law' (DL) adds an epenthetic copy vowel to CR onsets (/kre/ → [kere]). Fieldworkers describe the resulting CVRV sequences ('DL sequences') as phonetically distinctive. Susman 1943:8 claims that "the first vowel is shorter than normal", and Miner 1979 agrees that "the sequences are spoken (and, apparently, sung) faster than other CVCV sequences".

Miner 1979 also suggests that DL sequences may have a special pitch accent pattern. He transcribes lexical disyllables with second-syllable accent (σσ'), but for DL sequences, he adds a secondary accent on the first syllable: [kèré]. He claims that "perceptually...it sometimes happens that the secondarily accented syllable has almost as much accent as, or even as much as (but never more than) the primarily accented one." However, he adds in a footnote, "I am not wholly convinced of the secondary accent... pending instrumental studies". In later work (Miner 1989), he omits the secondary accent from transcriptions.

#### **Proposed representations**

The reported phonetic properties of DL sequences (in conjunction with exceptional phonological behavior relating to accent, reduplication and ablaut) have spurred proposals that the sequences have unusual phonological representations. For example, Alderete 1995 proposes that DL sequences are represented as single heavy monosyllables. He argues that a DL sequence "is parsed as a unit that is quantitatively less than two light syllables. This structural difference with respect to syllable count is assumed to account for the observed duration contrast..."

In an Articulatory Phonology framework, Steriade 1990:388 suggests that DL epenthesis consists of gestural retiming rather than insertion of a new vowel gesture. The two "copy" vowels are actually a single articulatory gesture with the sonorant gesture superimposed on its middle, a timing shift that "automatically turns a monosyllable into a disyllable". This idea is further developed by Hall (2006), who connects it to Alderete's idea that the sequences are monosyllabic: she argues that gestural retiming is insufficient to create a new syllable.

The reported "secondary accent" on the first syllable of DL sequences has also inspired innovative proposals. Based on the assumption that both vowels bear accent, Stanton & Zukoff (to appear) argue for a novel correspondence constraint demanding that epenthetic vowels share prosodic qualities with the vowels whose quality they copy.

## Corpus

We expand the description of Hocank epenthesis through acoustic analysis of Miner's archived recordings, which were made in Wisconsin in 1974-75. As most theoretical analyses rely primarily on Miner's transcriptions (Miner 1979, 1989, etc.), these data represent the empirical base for existing theories. After annotating 28 hours of elicitation sessions, we extracted over 5500 word and phrase tokens produced by three Hocank speakers, including hundreds of DL sequences. The present analysis based on a comparison of 184 DL sequences against 270 lexical CVRV sequences, matched for word shapes and medial sonorants.

## Results

We find that DL sequences indeed have a significantly shorter duration than lexical CVRV sequences. The duration difference is found in both vowels, although it is larger in the first. Interestingly, the duration differences hold only in words of three or more syllables. When produced in isolation, it appears that the DL sequences lengthen, perhaps to fulfill a phonetic word minimality requirement.

We do not find that DL sequences have different pitch patterns than lexical disyllables, contra Miner 1979. After normalizing for duration, the pitch on DL and non-DL CVRV sequences is consistent, with no evidence for a special secondary stress on DL sequences. It could be that a given pitch contour is simply perceived differently on sequences of shorter duration.

In short, our findings are consistent with the idea that DL sequences are representationally unlike other disyllabic sequences, as proposed by Alderete and others. However, the difference is primarily one of duration, not of pitch.

## References

- Alderete, J. (1995). Winnebago accent and Dorsey's Law. In *University of Massachusetts Occasional Papers in Linguistics 18: Papers in Optimality Theory*. Amherst, MA: Graduate Linguistic Student Association.
- Hall, N. (2006). Cross-linguistic patterns of vowel intrusion. *Phonology*, 23(3), 387-429.
- Hayes, B. (1995). *Metrical stress theory: Principles and case studies*. University of Chicago Press.
- Miner, K. L. (1979). Dorsey's law in Winnebago-Chiwere and Winnebago accent. *International journal of American linguistics*, 45(1), 25-33.
- Miner, K. L. (1989). Winnebago accent: The rest of the data. *Anthropological Linguistics*, 148-172.
- Steriade, D. (1990). Gestures and Autosegments: Comments on Browman and Goldstein's Paper. *Papers in Laboratory Phonology 1: Between the Grammar and Physics of Speech* ed. by John Kingston and Mary Beckman, 382-397.
- Stanton, J & Zuckoff, S. (to appear) Prosodic identity in copy epenthesis: evidence for a correspondence-based approach. *Natural Language & Linguistic Theory*
- Susman, A. (1943). *The accentual system of Winnebago*. Columbia University.