

Tone and Vowel Reduction in East Slavic

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Typically, phonological tone is realized phonetically by pitch. However, it has been suggested in the literature that there are other perceivable ways to implement phonological tone phonetically (Lockwood 1983, van der Hulst 1999). There is evidence that tone can be expressed by prolonged duration, with or without identifiable pitch patterns (Lockwood 1983, Bethin 2006). The attraction of tone to long vowels has been found to be phonetically motivated. For instance a pitch rise takes longer to be produced than a pitch fall. Thus a tonal contour could be expected to be phonetically implemented more fully in association with longer segments (Ohala & Ewan 1973, Ohala 1978, Zhang 2004). Furthermore, there is a correlation between tone and vowel height. Low vowels are inherently longer because they are produced with a wider aperture than mid and high vowels (Lehiste 1970). Since high tones need more time to be realized, they favour long segments. Therefore, low vowels are expected to constitute a better landing site for a high tone than high vowels. This paper argues that, in addition to lengthening, vowel lowering can be used as an additional strategy to increase vowel duration, and consequently make it a better landing site for a phonological tone.

We will look at two degree reduction types found in East Slavic languages such as Russian and Belarus, in which moderate reduction to corner vowels occurs in pretonic syllables, and extreme reduction to schwa is found in other unstressed positions. These patterns are interesting for several reasons. First, there are both sonority-reducing and contrast-enhancing neutralisations occurring within one language. Next, in a group of East Slavic dialects the quality of reduced vowels depends on the quality of the stressed vowel: moderate reduction takes place when the stressed vowel is high, and extreme reduction occurs when the stressed vowel is non-high. Moreover, in some dialects pretonic reduction is accompanied by vowel lengthening (Bethin 2006). Although the phenomenon of vowel reduction has been extensively studied within most phonological theories, and, most recently, within the framework of Optimality Theory (Beckman 1998, Oostendorp 2000, Crosswhite 2001, de Lacy 2006), these studies do not account for all reduction patterns found in East Slavic. The present paper proposes a novel account, in which a different mechanism is argued to be responsible for vowel reduction. The proposal is based on the evidence that pretonic vocalic neutralisations are driven by the presence of an underlying tonal contour. More exactly, pretonic reduction to a (a-talk) serves as an exponent of an underlying tone. The idea that a high tone is present in the phonological system of East Slavic is not new. In Halle's (1997) analysis of Russian stress system, a high tone H is assigned to the syllable bearing main stress, and low tones to the rest. Bethin (2006) argues that the lengthening of pretonic vowels found in East Slavic dialects is due to the underlying tonal contour LHL. Crucially, pretonic vowels lengthen when associated to a high tone H. Kasatkina (2005) notes that in the present day standard Moscow pronunciation, the 'reduced' a found in unstressed syllables is a fully open vowel, not differing in quality from its stress correspondent. Based on these observations, I argue that in dialects with a-talk, pretonic vowels lower because they are linked to a high tone. This analysis provides a common denominator for two seemingly disparate processes occurring in pretonic position in East Slavic, vowel lengthening and vowel reduction. The assumption that moderate vowel reduction is caused by the presence of an underlying tonal contour allows us to account for typologically rare patterns of two-degree reduction found in East Slavic, to explain dialectal variation, and to predict the direction of sound change.

References

- Beckman, Jill. 1998. Positional Faithfulness. PhD, University of Massachusetts, Amherst.
- Bethin, C. Y. 2006. Stress and tone in East Slavic dialects. *Phonology* 23, 125-156.
- Crosswhite, K. 2001. *Vowel Reduction in Optimality Theory*. New York and London: Routledge.
- Halle, M. 1997. On Stress and Accent in Indo-European. *Language* 73, 275-313.
- van der Hulst, H.G. 1999. *Word prosodic systems in the languages of Europe*. Mouton de Gruyter, Berlin and New York.
- Kasatkina, R. F. 2005. Moskovskoe akan'e v svete nekotoryx dialektnyx dannyx. *Voprosy Jazykoznanija* 53, 29–45.
- de Lacy, P. 2006. *Markedness: reduction and preservation in phonology*. Cambridge: Cambridge University Press.
- Lehiste, I. 1970. *Suprasegmentals*. Cambridge.
- Lockwood, D. G. 1983. Tone in non-substantive theory of language. *Lacus Forum* 10, 131-140.
- Ohala, J. J. 1978. Production of tone. In Victoria A. Fromkin (ed.) *Tone: A Linguistic Survey*, New York: Academic Press. 5–39.
- Ohala, J. J. and W. G. Ewan (1973). Speed of pitch change. *JASA* 53. 345.
- van Oostendorp, M. 2000. *Phonological Projection; A Theory of Schwa in Optimality Theory*. Berlin: Mouton - De Gruyter.
- Zhang, J. (2004). The role of contrast-specific and language-specific phonetics in contour tone distribution. In Bruce Hayes, Robert Kirchner and Donca Steriade (eds.) *Phonetically based phonology*. Cambridge: Cambridge University Press. 157–190.