

Testing hypotheses about sound change against “nature-made controls”: The high vowels of Lezgi

Experimental work on sound change can follow two methodological directions, outlined by Ohala (1974): “that of the man-made controls and that of the nature-made controls” (Ohala 1974: 353). The second type of control is harder to come by, but when available, it can be a valuable testing ground for hypotheses. Within this approach we propose to study historical change by comparing synchronic variation across languages, as in a natural laboratory. The goal of our study is to test hypotheses about a type of variation that can be interpreted as potential sound change in one language (Lezgi, NE Caucasian) against a similar, but systematic variation in another language (Japanese).

The variation in Lezgi concerns the syncope of an unstressed high vowel in the first syllable of a word. The vowel is reported to be variably maintained as secondary articulation on a preceding obstruent. The process affects the three high vowels of Lezgi, [i, y, u], in pretonic position and following a voiceless obstruent (Kodzasov 1990, Haspelmath 1993):

(1)	<i>absolute singular</i>	<i>absolute plural</i>
a. ‘flower’	tʃyk ^h	tʃ ^{hw} k ^{hw} -ér
b. ‘cannon’	t ^h up ^h	t ^{hw} p-ár
c. ‘book’	k ^{hj} táb	k ^{hj} tab-ár

The acoustic analysis of local spectral properties (Chitoran & Iskarous 2008) of the fricative [s] preceding the disappearing high vowels confirms the fact that the vowel is not entirely deleted. Since it is not visible on the acoustic record, it is hypothesized that the vowel is present, but devoiced. At this point the comparison with Japanese becomes informative. We try to determine:

- whether the variation currently attested in Lezgi can be an indication of a sound change in progress;
- whether the variation attested in Lezgi is phonetically (perceptually) similar to the one in Japanese.

We test the recoverability of the vowel from [s] in CV sequences in three languages:

(2)	Japanese	confirmed vowel devoicing, regular pattern
	Lezgi	possible vowel devoicing, more variable pattern
	Standard French	no vowel devoicing

We hypothesize that the devoiced vowel will be recovered more often in a language with regular, confirmed devoicing (Japanese, e.g., Beckman & Shoji 1984) than in one without (French). At the same time, a language with a more variable devoicing pattern (Lezgi) may fall in-between in perception scores. The stimuli consist of fricatives excised from: sí, si (ʃi for Japanese), sú, su, sá, sa, as well as [s] produced in isolation. Three perception tests, one for each language, including both identification and discrimination tasks, will be presented to Japanese and French speakers. We predict that:

- both Japanese and French listeners will be more likely to accurately recover the high vowel from Japanese [s] than from French [s].
- if the variable pattern reported for Lezgi is similar enough to the regular one established for Japanese, then general perception results for Japanese and Lezgi should be similar, and different from those for French. Preliminary data indicate that French listeners can recover Lezgi vowels from [s]. If they can recover Japanese vowels to the same extent, we can interpret this as evidence that Lezgi shows a very similar vowel devoicing pattern to Japanese.

This study examines the role of perceptual factors in determining phonetic variation that can subsequently lead to sound change. At the same time it evaluates the relevance of cross-language perception studies to the understanding of sound change, in parallel with the more common methodology of laboratory-induced changes.

References

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