The development of vowel harmony in Turkic: Phonologization and analogy

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Vowel harmony is often viewed as arising from phonologization of vowel-to-vowel coarticulation (e.g., Ohala 1994; Hyman 2002; Barnes 2006; cf. Johanson 1978-79). This view, consistent with the Neogrammarian view of sound change, predicts a wholesale change from phonetic coarticulation to iterative harmony within some domain, as phonologization and analogy transform the once-phonetic effect into a phonological pattern. We argue that phonologization and analogy must be treated as two separate aspects of the emergence and decay of vowel harmony. Our evidence comes from patterns of non-iterative harmony where the domain of harmony cannot be defined in terms of some well-motivated morphological or prosodic category.

Hyman (2002), Barnes (2006) and others suggest that the emergence of harmony is attributable to a general phonologization of coarticulation. Without further development, this predicts two kinds of languages: (1) those with coarticulation, either as the precursor for or remnant of harmony, and (2) those with harmony. However, cases of non-iterative harmony are attested during the emergence and decline of rounding harmony in various Turkic languages. During the development of iterative rounding harmony in Ottoman Turkish, Viguier (1790:287) reports two distinct registers that differ by iterativity, e.g., *olduği ičün* (literary; non-iterative) vs *olduğu ičin* (colloquial; iterative; see also Duman 1999).

As a case study in decay, we can track the loss of rounding harmony in some dialects of Crimean Tatar over the last 150 years. In the late 19th century, data collected by Radlov support a robust, iterative pattern, as seen in Table 1. Moreover, our analysis of Radlov's (1896) corpus reveals no differences across dialects, suggesting that harmony was pervasive in all three dialect groups.

	Syllable 2	Syllable 3	Syllable 4	Total
Harmony	4,559	946	105	5,610
Disharmony	134	54	6	194
Total	4,693	1,000	111	5,804
Percent harmony	97.1	94.6	94.6	96.7

Table 1: Counts of harmony and disharmony in Radlov (1896)

However, more recent descriptions of Crimean Tatar reveal significant erosion of the pattern observed in Radlov's data. Of the three major dialect groups, only the southern dialect preserves the iterative pattern, e.g., tuz-luɣ-u 'salt.shaker-POSS.3s.' In the central dialect, harmony is non-iterative, with only one vowel undergoing rounding, e.g., tuz-luɣ-ɯ. In the northern dialect, harmony is completely absent (Sevortjan 1966). In fact, the most recent descriptions of the northern dialect report optional unrounding of initial [+high, +round] vowels, tuz-lɯɣ-ɯ ~ tɯz-lɯɣ-ɯ (Kavitskaya 2010, 2013). Similar domain contraction is attested in Kazakh (Radlov 1870; Balakayev 1962; McCollum 2015).

The claim that iterative harmony emerges directly from coarticulation appears to be an oversimplification. Similarly, a simple return to coarticulation also fails to account for the some patterns of decay attested in Turkic, especially the recent erosion of rounding harmony in Crimean Tatar. Thus, the transition from or to phonetic coarticulation represents only a single step in a more complex pattern of change that may involve both phonologization and analogical extension.

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