

## More than phonologization: The emergence and decay of vowel harmony in Turkic

It has been proposed that vowel harmony arises through the phonologization of vowel-to-vowel coarticulation (e.g., Ohala 1994; Hyman 2002; Przedzicki 2005; Barnes 2006). In a similar manner, Johanson (1979) argues that the evolution of rounding harmony in Turkish is attributable to the reduced phonetic quality, [ə], of [+high] suffixes. Given these claims, the null hypothesis is that the loss of phonological harmony would affect the domain of harmony as a whole, resulting in phonetic vowel-to-vowel coarticulation. More generally, this predicts three kinds of languages relevant for vowel harmony, (1) those with coarticulation, which sows the seeds for harmony, (2) those with harmony, and (3) those with coarticulation as the residue of lost vowel harmony. Drawing on 19th century texts and our own fieldwork, in this talk we argue that both the emergence and decay of rounding harmony in numerous Turkic languages crucially involve stages between these endpoints.

### 1. The emergence of harmony

Two general constraints on rounding harmony in Old Turkic have been noted. First and most significantly, the alternation of non-initial high vowels was governed by lexical factors. As Anderson (1996) observes, there appear to be three classes of suffixal high vowels in Old Turkic. One class consisted of vowels that were invariantly [+round], another consisted of vowels that were invariantly [-round], and a third class alternated for rounding (see also Erdal 2004:§2.2). We can thus conclude that the application of harmony was delimited by lexical specification. In addition to these lexical forces, phonological factors also affected the application of harmony in Old Turkic. It is well known that alternating vowels did not appear in CV suffixes (Tekin 1967; Kondrat'ev 1981:19; see Nadzhip 1971:52 for a similar observation in modern Uyghur). Moreover, Kondrat'ev (1981:19) observes that the application of harmony depended in part on the number of consonants that intervened between trigger and target, a fact also observed in modern Ili Turki (Xiāngrú & Hahn 1989:273).

These same factors are also implicated in the specific development of rounding harmony in Ottoman and modern Turkish. On the phonological side, Duman (1999) argues that rounding harmony was operative in 18th century colloquial Turkish although it was less entrenched in the written language (based on Viguier 1790). Observe the harmony-related differences between the two registers. First, Viguier (1790:287) reports pairs like *olduđi içün* (literary) vs *olduđu için* (colloquial), and *vücüdi* 'his/her body' (literary) vs *vücüdü* (colloquial). In the literary version, harmony extends to the second syllable only in *olduđi*, while in the colloquial version harmony iterates throughout the word. In tandem with differences in iterativity, Viguier's data also support the existence of morpheme-specific restrictions on harmony, e.g., the possessive suffix *-in* does not alternate in the literary register, e.g. *özinde* 'in essence' but does in colloquial Turkish, *özünde*. Evidence from Viguier's texts supports the existence of both non-iterativity, or at minimum optionality, as well as lexeme-specific harmony in 18<sup>th</sup> century Turkish.

### 2. The decay of harmony: A case study from Crimean Tatar

Generally, there is very little work on the decay of vowel harmony (cf. McCollum 2015, to appear; Sandstedt 2018, 2020). In Turkic, there is comparatively more, although extant work on

Turkic focuses primarily on the causes, not the pathways by which harmony decays (e.g., Lauder-Cirtautus 1977; Binnick 1991; Johanson 1998; Harrison et al. 2002; Dombrowski 2013).

As a case study in how harmony decays, we can track the loss of rounding harmony in some dialects of Crimean Tatar (CT) 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, an analysis of Radlov’s (1896) corpus reveals no differences across dialects, suggesting that harmony was pervasive in all three dialect groups. Observe in Table 1 that the rate of harmony is exceedingly high in all target syllables; in all non-initial syllables, the rate of harmony exceeds 94%.

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

	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

However, more recent descriptions of CT 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-luy-u ‘salt.shaker-POSS.3S.’ In the central dialect, harmony is non-iterative, with only one vowel undergoing rounding, e.g. tuz-luy-u. In the northern dialect harmony is completely absent (Sevortjan 1966). In fact, the most recent description of the northern dialect reports optional unrounding of initial [+high, +round] vowels, tuz-luy-u ~ tuuz-luy-u (Kavitskaya 2010, 2013). In addition to these phonological differences, Kavitskaya (2010) reports lexeme-specific restrictions on harmony – several high vowel suffixes systematically fail to undergo rounding harmony in the central dialect, including the accusative and genitive case suffixes, /-nɪ/ and /-nɪŋ/, although both of these suffixes consistently alternate in Radlov’s data. Similar domain contraction as well as lexically-specific patterns of decay are attested in Kazakh (Radlov 1870; Balakaev 1962; McCollum 2015), as well as changes from Chaghatai to modern Uzbek (Eckman 1966; Bodrogligeti 2001).

### 3. Discussion

Based on the evidence from Turkic, the claim that harmony emerges directly from coarticulation appears to be an oversimplification. Similarly, a simple return to coarticulation also fails to account for the specific patterns of decay attested in Turkic, especially the recent erosion of rounding harmony in CT. Thus, the transition from or to phonetic coarticulation represents only a single step in a more complex pattern of change. In between coarticulation and pervasive harmony one sees a variety of intermediate possibilities – lexically-specific harmony (Old Turkic, Chaghatai), non-iterativity (Central CT, Karakalpak), optionality (Kazakh), as well as contextual, phonological restrictions on harmony (Uyghur, Ili Turki). We propose that these possibilities form various pathways for the emergence and decline of harmony, and further, infer from the history of Turkic that the transition from coarticulation to pervasive harmony must proceed via these pathways. In other words, we argue that harmony does not transition directly from coarticulation to full-fledged harmony, or from full-fledged harmony to coarticulation, but changes via the pathways sketched out above.