Vowel harmony and vowel neutralization in Kayseri Turkish
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Introduction. One of the most debated issues in the analysis of vowel harmony is identifying the most appropriate formal mechanism to model its behaviour. A related question concerns which phonological processes vowel harmony most closely resembles. For example, is it merely a special form of assimilation, requiring minimal harmony-specific formal tools? Are stress-dependent harmonies tied to foot boundaries, thereby supporting the use of metrical trees in their analysis? Or is vowel harmony comparable to tonal spreading, making it amenable to autosegmental representations?

This paper has three primary goals. First, it presents data on a previously unreported interaction between vowel harmony and vowel neutralization in Kayseri Turkish, a dialect spoken in central Turkey. Second, it argues that Kayseri Turkish word-initial vowel neutralization does not result in the complete loss of the phonological feature undergoing neutralization. Instead, under certain conditions, this feature shifts to the next vowel, in a manner reminiscent of tonal shift in tone languages. Kayseri Turkish harmony thus provides a rare example of a segmental feature exhibiting a property typically associated with tones (Hyman 2011). Relatedly, our third goal is to show that an autosegmental representation of Kayseri vowel harmony offers a unified and insightful account of these phenomena.

Data. In most respects, the phonology of Kayseri Turkish is similar to that of Standard Turkish. The two dialects share the same vowel inventory: /i, y, e, ø, ɯ, u, a, o/. Similarly, their vowel harmony alternations are mostly the same. In both varieties, "suffix vowels alternate [in backness] according to the category of the root vowel. Moreover, all high vowels agree in rounding with the preceding vowel, whether high or not; non-high vowels show no alternation in rounding" (Clements & Sezer 1982: 216).

However, Standard Turkish and Kayseri Turkish differ because of a peculiar restriction in the latter: /y/ and /ø/ can occur word-initially only if they are not followed by another front round vowel. This means that they can be found in monosyllables (2a, 2d), in monosyllabic roots followed by a non-high suffix vowel (2b, 2e), in polysyllabic roots in which the second vowel is not front and round (2g), but not in monosyllabic roots followed by a high suffix vowel (2c, f) or polysyllabic roots in which the second vowel is front and round (2h).

(2) a. gøz 'eye'   b. gøz-ler 'eye-PL'   c. goz-lyk 'glasses'
     d. gyn 'day'   e. gyn-ler 'day-PL'   f. gun-lyk 'dayly'
     g. jørek 'heart'   h. hukym 'ruling' (cf. st. Turkish [hykym])

Analysis of neutralization. I interpret this restriction on word-initial vowels and the alternations it creates in monosyllabic roots (2a vs. 2c; 2d vs. 2f) as a straightforward case of vowel neutralization: underlying /y/ and /ø/ neutralize to [u] and [o], respectively, when they occur in the first syllable of a polysyllabic word. The vowel neutralization process lends itself to an account in terms of unary features [Front] and [Round] (or equivalently for the present discussion, |I| and |U| Dependency Phonology components/Government Phonology elements), where the most complex feature/component combination (i.e., a rounded front vowel) is barred from initial syllables.
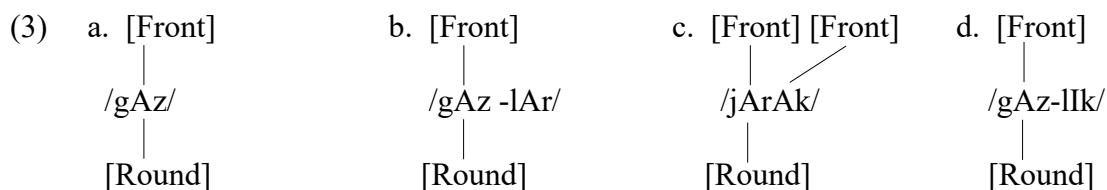
Analysis of vowel harmony. Neutralization provides a straightforward explanation for the retraction of the initial syllable in (2c, 2f). However, by itself it is not sufficient to account for three additional facts. First, it is unclear why neutralization fails to occur when an initial front round vowel is followed by a non-high vowel (2b, 2e, 2g). Second, lack of retraction in monosyllables (2a, 2b) has to be stipulated. Third, when neutralization does occur in inflected monosyllabic roots, suffix vowels are front even though the root vowel has become back (2c,

2f), seemingly violating vowel harmony requirements. At first glance this appears to be a case of derivational opacity: the underlyingly front vowel of the root apparently causes harmony first (front rounded suffix vowels can only occur after roots that end in an underlying front rounded vowel); subsequently, the root vowel retracts (/gøz-lIk/ → gøz-lyk → [goz-lyk]). However, a derivational account should stipulate that retraction only occurs if the initial vowel is followed by a high vowel; otherwise, retraction is blocked.

Instead, a set of representational assumptions very close in spirit to those proposed by Clements & Sezer (1982) for standard Turkish can account for Kayseri Turkish harmony in a principled and general manner, when augmented with independently motivated constraints and representational assumptions related to vowel neutralization. We make the following claims concerning Kayseri Turkish harmony and neutralization:

1. [Front] and [Round] form separate autosegmental tiers
2. Harmony is due to the constraint SPREADCOLOR (Padgett 2002): the COLOR feature class, which includes [Front] and [Round], must spread
3. within roots, the vowels /i, e, a, o, u/ freely co-occur, while the vowels /y, ø/ may occur only harmonically (Clements & Sezer 1982: 227)
4. alternating suffix vowels are underlyingly unassociated to the COLOR features
5. suffix vowels unassociated to COLOR features must be associated to these features in an output (although suffix non-high vowels cannot be associated to [Round])
6. a markedness constraint *INITIAL[FRONT&ROUND] prohibits rounded front vowels in unstressed initial syllables
7. the faithfulness constraints FAITH[ROUND] and FAITH[FRONT] protect these features from deletion
8. the (partial) ranking is FAITH[ROUND] >> FAITH[FRONT] >> SPREADCOLOR >> *INITIAL[F&R]

Given these assumptions, neutralization is blocked when it is not possible to re-associate a word-initial [Front] to the following syllable (the feature [Round], being more highly ranked, is never affected). [Front] cannot be deleted in monosyllables (3a) because this would violate FAITH[FRONT]. Given the input in (3b), delinking [Front] would comply with *INITIAL[F&R], but its deletion would violate the more highly ranked FAITH[FRONT], while its re-association with the following vowel would create the output *[gozler], violating SPREADCOLOR twice: neither vowel would host both [Front] and [Round]. Given (3c), delinking [Front] would again comply with *INITIAL[F&R], but it would not be possible to re-associate the feature [Front] to another root vowel, and its deletion would violate FAITH[FRONT]. Finally, neutralization occurs and [Front] shifts to another vowel when the input is as in (3d): *INITIAL[FRONT&ROUND] makes the presence of [Front] in the initial vowel inappropriate, while FAITH[FRONT] protects it from deletion; the presence of an unassociated suffix high vowel allows [Front] to be re-associated there, thus violating SPREADCOLOR only once.

(3) a. [Front]   b. [Front]   c. [Front] [Front]   d. [Front]

        | | | / |

     /gAz/   /gAz -lAr/   /jArAk/   /gAz-lIk/

        | | | |

     [Round]   [Round]   [Round]   [Round]

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