

Turkish Problem “Solution”

Note: There are a number of ways to state the patterns encountered in this problem. This is by no means the only one.

We are given five verb roots: *gör* ‘see’, *atf* ‘open’, *yet* ‘reach’, *kir* ‘break’, and *yaz* ‘write’. To these we can add suffixes like **Past tense**, with allomorphs: *-dü*, *-di*, *-di*, *-du*, *-tü*, *-ti*, and *-ti*.

The form **-tu* is not found in this data, but it may be possible. The voiceless forms (with /t/) are found after voiceless sounds, and the voiced forms (with /d/) after voiced sounds, including vowels. There are four possible vowels, all high, and they participate in a **vowel harmony** with the vowel in the preceding syllable. Specifically, they have the same value of the feature **front/back**, and of the feature **rounded/unrounded**, as the vowel in the preceding syllable. Thus,

/i/	[front unrounded]	follows	/i/	or	/e/	[both front unrounded],
/u/	[back rounded]	follows	/u/	or	/o/	[both back rounded],
/ü/	[front rounded]	follows	/ü/	or	/ö/	[both front rounded],
/ı/	[front unrounded]	follows	/i/	or	/a/	[both front unrounded].

Note that these are all high vowels. This **high vowel harmony** pattern occurs **whenever** there is a high vowel in **any** suffix, so there are always at least four allomorphs of every high vowel suffix, and they are always conditioned by the vowel in the preceding syllable. Since there may be many such affixes in a row, this produces words with many syllables containing the same vowel.

However, other vowels can also appear in suffixes. There is another type of harmony, called **low vowel harmony**, as in the **Future Tense** morpheme /*(y)adzak/*, or /*(y)edzek/*. In this variety, rounding is unimportant and there are only two allomorphs: one with /e/ and one with /a/. These also depend on the vowel in the preceding syllable, but only on whether it is front or back. In the Future, there are two low vowels; since the second one depends on what the first one is, they will always be the same. Thus,

/e/	[front]	follows	/ü/	/ö/	/i/	or	/e/	[all front],
/a/	[back]	follows	/u/	/o/	/ı/	or	/a/	[all back].

For convenience, we will simply represent the two types as a boldface **i** (for High Vowel) and a boldface **e** (for Low) in what follows, and we will use a boldface **d** to indicate that the stop is either voiced /d/ or voiceless /t/, and assimilates to the preceding sound.

List of suffixes:

Notes:

I. Passive:	-il	
II. Negative:	-m(e)	the /e/ deletes before vowels.
III. Future:	-(y)eΔek	the /y/ deletes after consonants.
IV. ‘should’	-meli(y)	the /y/ deletes word-finally.
V. Progressive:	-iyor	the /o/ does not harmonize.
VI. Perfect:	-miş	
VII. Past:	-di	
VIII. Interrogative:	-mi(y) ¹	the /y/ appears before vowels.

Paradigm of personal pronoun suffixes:

	Singular	Plural
1st Person	IX. -(i)m	X. -(i)z
3rd Person	—	XI. -lar

- Notes:
- There are no 2nd Person forms in the data
 - There are no feminine 3rd Person forms in the data
 - The 1st Person forms with vowels follow consonants.
 - The 3rd Person singular form is **zero**; i.e, nothing is added.
 - The 1st Person forms **follow** Past Tense.
 - The 3rd Person plural form **precedes** Past Tense.

Not all suffixes can cooccur; for instance. However, there are a large number of possible combinations. There are eight possible suffix slots following the root, each of which can be filled with one or more morphemes. Using the numeration above, the order of suffixes is:

Root +	I ø ³	II ø ³	III ² IV ² V ⁴ ø ³	VI ø ³	XI ø ³	VII ø ³	VIII ø ³	IX X ø ³
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¹ Alternatively, we could analyze First Person (IX, X) as beginning with a /y/ that deletes after consonants, like Future (III). Either solution works.

² There is no data on the comparative positions of (III) and Progressive (IV); they both follow Negative (II) and precede Perfect (VI), but do not cooccur.

³ Zero (ø), the empty morph, is always a possible choice in each of these paradigms. This simply means that no slot is obligatorily filled.

⁴ There is also no data on the comparative position of ‘should’ (V); like III and IV, it follows II. However, it does not cooccur with III, IV, or VI.