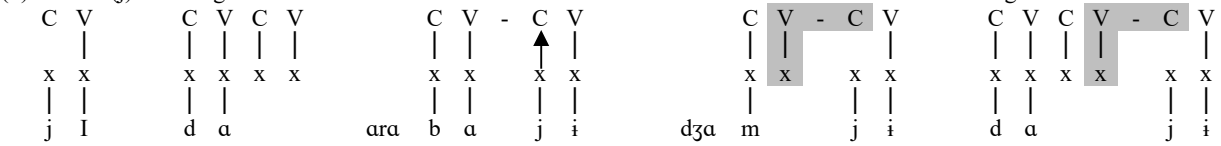
Soft g in Turkish: two types and x-slots

Turkish is known for having an item called soft g, represented as ğ in spelling. We show that there are two types, ğ1 and ğ2, and submit that their analysis requires x-slots.

Data ğ1. Synchronically, soft g is only relevant when occurring morpheme-finally, where it produces alternations when suffixes are added. ğ1 never appears on the surface as a segment or a feature, but betrays its existence by i) causing the preceding vowel to lengthen and ii) preventing suffix-initial consonants from being realized. Thus, when a ğ1-final root such as /dɑğ1/ 'mountain' is realized by itself in Nom case, it appears as [dɑɑ] with a lengthened vowel. That the vowel is lexically short is shown by the Acc [dɑ-ɨ]. The Acc marker is -(j)I, where I stands for a harmonizing vowel (note that there are many more suffixes of this kind), and the yod is realized after V-final roots as in [ɑrɑbɑ-jɨ] 'car.Acc' while it is absent after C-final roots as in [dʒɑm-ɨ] 'glass.Acc'. Turkish allows for word-internal CC clusters (nothing withstands *[dʒɑm-jɨ]), and that there are also suffixes where the initial C is stable (like pl. -lAr: [dʒɑm-lɑr] 'glass.pl'). Although V-final on the surface, ğ1-final roots behave as if they were C-final: the yod is absent, as in the aforementioned [dɑ-ɨ] 'mountain.Acc'.

Analysis ğ1. We conclude that the phonological identity of ğ1 is extra syllabic space, i.e. an empty CV unit in the sense of Strict CV (Lowenstamm, 1996; Scheer, 2004): thus the lexical shape of ğ1-final roots is shown under (1b). When unsuffixed, the root-final vowel spreads to the empty nucleus, thus producing [dɑɑ]. The initial yod of the Acc marker (1a) is floating. When attached to a V-final root (1c), the yod associates to its own C. After C-final roots (1d), a sequence of an empty V followed by an empty C is created (grey-shaded). Empty VC units are known to be removed from the representation, and this is possibly universal (reduction, Kaye & Gussmann, 1993). Thus after reduction, the yod has nowhere to go and remains afloat, thus unpronounced. Reduction also occurs after ğ1-final roots (1e), thus the floating yod cannot attach to its own C. It cannot attach to the empty C of the root (in orange) either since this C, like the floating yod, is attached to its own x-slot and an x-slot cannot attach to another x-slot (this is reminiscent of the workings of h aspiré in French, Clements & Keyser, 1983). Finally, the root vowel cannot spread because its target, the empty V, is eliminated by reduction.

(1) a. Acc -(j)I b. ğ1-final stem c. V-final stem Acc d. C-final stem Acc e. ğ1-final stem Acc



Analysis: desiderata. The desiderata for this pattern is i) the lexical presence of extra syllabic space in ğ1-final roots, with this space, however, ii) disallowing for the presence of iii) suffix-initial consonants that alternate with zero. i) could be done with moras or other items representing extra syllabic space. The representation of iii) as floating Cs appears to be the obvious solution in an autosegmental environment, and its appearance then needs to be regulated by some mechanism. But ii) begs the question. Other than the solution based on x-slots (in addition to syllabic constituents) that we favor, one could think of a dummy segment attached to the empty C in (1b), which by its presence will prevent the floating C to attach. This is the solution in the traditional literature (and also mimics the diachronic origin of ğ1 as a consonant), but the segment will somehow have to be muted and, crucially, association lines will cross when the root vowel spreads. Another option is turbidity (Goldrick, 2001; Cavirani, 2022): a consonant is associated to the empty C under (1b), but remains unpronounced because it only has a belonging association line, the pronunciation line being absent. This improves on the previous solution (the item does not need to be muted), but still faces the line crossing issue.

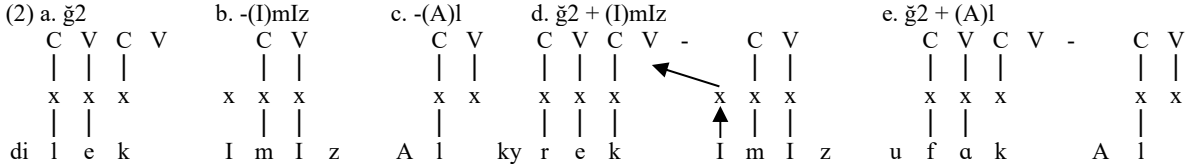
Data ğ2. Like ğ1, ğ2 only occurs morpheme-finally, where it appears as k or zero: dilek - dile-i - dilek-ler "wish.Nom, Acc, pl". Note that the language also has k-final roots where k is stable. The literature holds that k occurs in coda position __{#,C}, while zero surfaces intervocalically (as in the examples mentioned), but then indicates many "exceptions". Such as -olmɑk "to

become", which provokes the presence of ğ2 (as k), although being V-initial: ɑɑʃɨk-olmɑk "to fall in love" (ɑɑʃɨ-ɨ "lover.Acc" witnesses that the -k is not stable, but a ğ2). Like with ğ1, another factor to be taken into account is the behavior of suffix-initial Cs or Vs that alternate with zero, as opposed to suffix-initial stable Cs and Vs. For instance, the initial vowel of the suffix -(I)mIz "1pl poss." alternates with zero: it is present after C-final roots (ɑt-imɨz "our horse"), absent after V-final roots (ɑrɑbɑ-mɨz "our car"). After ğ2-final roots, it is present and ğ2 itself is absent: kyre-imiz "our oar" (the presence of a ğ2 is witnessed by Nom kyrek). Thus, ğ2 behaves like a consonant in this case. ğ2 behaves like a vowel, though, when followed by the suffix -(A)l, whose initial vowel also alternates with zero according to the previous pattern: present after C-final (dɑr-ɑl "to narrow"), absent after V-final roots (kɨsɑ-l "to become short"). But after ğ2-final roots, the suffix-initial vowel is absent (and ğ2 itself is also absent): ufɑ-l "to shrink" (Nom ufɑk "tiny" witnesses the presence of a ğ2 in this root).

The presence or absence of ğ2 and suffix-initial Vs or Cs that alternate with zero produce a highly complex pattern that, as far as we can see, has not been described to date. One reason for that may be that Turkish is a polysynthetic language and as such offers a large number of suffixes. We have classified 117 suffixes (which should be near exhaustive) according to how they pattern wrt. the criteria mentioned: the presence/absence of the suffix-initial C/V after C-, V- and ğ2-final roots; presence/absence of ğ2 itself. The result is a list of 9 suffix classes.

Analysis ğ2. ğ2 is a floating k (2a), as opposed to stable root-final k, which is lexically attached. We believe that the traditional coda-based analysis is essentially correct: the floater associates when followed by an empty nucleus (= __{#,C} in Strict CV), but remains afloat in intervocalic position (= when the immediately preceding and following nuclei are contentful). Cases where ğ2 is present before V-initial suffixes (ɑɑʃɨk-olmɑk) are due to the suffix coming in its own computational domain [[ɑɑʃɨk]-olmɑk]: upon computation of the inner domain, ğ2 is associated because its nucleus is empty /ɑɑʃɨkø/. When the outer domain is computed, the association is not undone.

The only difference between -(I)mIz (2b) and -(A)l (2c) is the presence of an x-slot in the former, against its absence in the latter suffix. Both vowels are floating and cannot attach anywhere after V-final roots (which end in a filled V). Both floaters attach to the root-final empty nucleus (which is lexically associated to an x-slot) of C-final roots (not shown). After ğ2-final roots, the floating I of -(I)mIz can attach to the root-final empty V (2d), thus placing ğ2 in intervocalic position (kyre-imiz). ğ2 therefore remains unpronounced. When -(A)l follows ğ2-final roots (2e) (ufɑ-l), the floating A cannot associate since the root-final V has no x-slot and neither has the floating A. Not being intervocalic, ğ2 should associate, but does not. This is because its association would create a final obstruent-liquid cluster (*ufɑkl), which in Turkish is illegal (any cluster can occur in this position, except TR#).



Conclusion. The empirical puzzle is quite a bit more intricate than what can be shown in an abstract. We believe that it can be reduced to regular phonology if x-slots are regular pieces of representations. While ğ1 could also be done with other tools, these fail when facing ğ2. Finally, ğ2 is known to always surface as *k* in verbal forms. We show that this kind of category-specific phonology is spurious when suffixes are understood as belonging to classes: out of the 9 classes identified, only 3 occur in verbs, of which 2 are common with nouns. All three classes produce the presence of *k*. Thus, the systematic presence of *k* in verbal forms may be due to the properties of these suffix classes, rather than to category: verbs just happen to not have suffixes that produce the absence of ğ2.