/e/ Lowering in the Turkish Negative Aorist

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This paper investigates acoustically an apparent case of lexical diffusion and incipient phonologization process in Turkish, i.e., lexical exceptions to an allophonic rule lowering /e/.

Descriptions of the phonological system of Turkish (Göksel & Kerslake, 2005; Erguvanlı Taylan, 2015; Gopal & Nichols, 2022; Kornfilt, 1997) concur that Turkish /e/ (and to a lesser extent /ø/) has three main allophones: [e] occurs in most environments, while [ɛ] occurs in word-final position and the allophone [æ] (which is the focus of this paper) occurs in closed syllables where the coda is /ɾ, l, m, n/, i.e. a sonorant consonant (lowering is unattested before /j/, but this consonant apparently is not a phonological sonorant in Turkish (Canalis et al., 2022)). All three of them can be observed in words such as *gezegen-de* [ɟezeɟændɛ] 'on the planet', *perende* [perændɛ] 'somersault'. Alternations between [e] and [æ] are systematic: *gel* [ɟæl] 'come!', *gel-d-im* [ɟældim] 'I came', *gel-ir* [ɟelir] 's/he comes', *ev-ler* 'houses' [evlær], *ev-ler-de* [evlærdɛ] 'in (the) houses', *ev-ler-im* [evlerim] 'my houses' (Göksel & Kerslake, 2005). Despite the consensus on these general traits of this /e/ lowering process, detailed acoustic analyses are lacking (apart from the ongoing survey reported in Gopal & Nichols (2022)), and discussions of lexical exceptions to the rule are both sporadic and limited. This paper provides preliminary acoustic data on the morpheme-specific occurrence of /e/ lowering to [æ] in an unexpected environment, i.e. the negative aorist suffix *-mez*.

In fact, in spite of its regularity in a huge number of words, lowering to [æ] both underapplies and overapplies. As for underapplication, in a small number of words /e/ before /l/, /m/ and /n/ may be pronounced as either /e/ or [æ]. Hence, some speakers pronounce *elbise* 'dress', *kendi* 'self', *bel* 'waist' or *hem* 'both' with /e/, others with [æ] (Göksel & Kerslake, 2005); for some younger speakers the form with /e/ seems to be the only possible one. This makes the (non-)occurrence of [æ] not fully predictable, creating near-minimal pairs (*bel* [bel] vs. *belge* [bælɟɛ] 'document', *kendi* [cendi] vs. *kent-li* [cæntli] 'urban', and so on). The lowering rule overapplies as well: in an even more limited number of words, /e/ seems to be lowered to [æ] when the coda is [z]. Gopal & Nichols (2022) mention that they found this lowering in the final syllables of the words *merkez* 'centre', *pekmez* 'molasses' and *gel-mez* 'go-NEG.AOR', but they do not expand on their finding.

In order to clarify the overapplication of lowering, six people from three age groups (early twenties, mid forties and mid sixties) were recorded in a silent room using a laptop and an external microphone. The speakers were asked to produce thrice in isolation 50 words containing /e/ in closed syllables, with either a sonorant or an obstruent consonant in the coda. The recordings were then imported into Praat (Boersma & Weenink, 2023) for a total of 1102 /e/ tokens (some words contained more than one /e/ token, while some of the tokens had to be discarded due to technical issues). The vowel onset and offset of each /e/ token was annotated manually. Afterwards, a Praat script (Lennes, n.d.) extracted F1 and F2 values at midpoint, and these values were Lobanov-normalized.

Our data instrumentally support the previous claim that /e/ is lowered to [æ] before sonorant codas

(Fig. 1). They also show that for four of our subjects the vowel in the negative aorist suffix *-mez* is as low as before a sonorant consonant (Fig. 2), while in no other word /e/ is lowered to [æ] if the coda is an obstruent (although *merkez* and *pekmez*, not shown separately in Fig. 2, have a somewhat lowered vowel). Since the suffix *-mez* has a very high frequency of occurrence and merkez and pekmez are relatively high-frequency words, we investigated the role of word frequency using online corpora (Sezer, 2017; TS Corpus.com, 2015). A mixed linear model (with speaker as a random effect) showed that /e/'s F1 is positively correlated with high word frequency (as well as with the following consonant being a sonorant and /e/ being in the final syllable): /e/ tends to be lowered more in high-frequency words.

While the phone [æ] in Turkish is overwhelmingly the output of a regular allophonic process lowering /e/, for some speakers in at least one morpheme [æ] occurs in an unexpected environment, i.e. before [z], creating a lexical exception (the counterpart of lack of lowering in words such as *elbise*). The gradient phonetic conditioning, the role of word frequency and the presence of lexical exceptions all suggest (Labov, 1994) lowering is expanding to new lexical items by lexical diffusion, establishing the early stage of a phonemic split of /e/ into two separate phonemes.

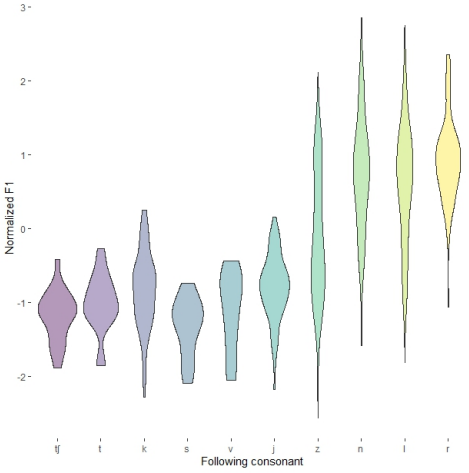

Figure 1: Normalized F1 values of /e/ for each consonant

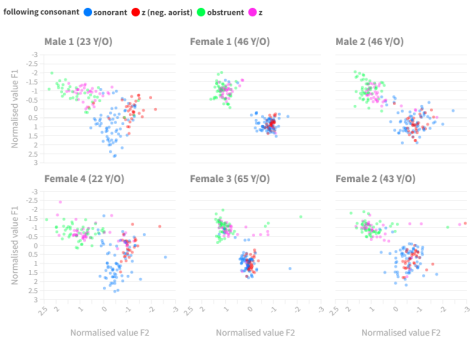

Figure 2: All /e/ tokens in the dataset

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