Phonological sonorant *z* in Turkish

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Basic pattern and exceptions. *e*, whose regular pronunciation is [e], is known to be lowered to [ɛ] preceding sonorants (*r*, *l*, *n*, *m*) in closed syllables in Turkish (e.g., [cemɛr] 'belt', [sɛl] 'flood', [bɛn] 'I', [cɛm] 'evil') (Erguvanlı-Taylan, 2015; Göksel & Kerslake, 2005; Gopal & Nichols, 2017; Kornfilt, 1997). However, the lowering of *e* before coda sonorants is not 100% surface-true. Thus, the lowering of *e* to [ɛ] fails to apply in some cases even though the triggering environment is met (compare [bɛlge] 'document' vs. [helvɑ] 'halva', [verɛm] 'tuberculosis' vs. [kɑlem] 'pen', etc.). Despite not being a sonorant, the coda *z* also triggers *e*-lowering, but only in the aorist suffix -z[1] (e.g., *øl-mɛ-z* 'die-NEG-AOR') and the stem [pekmɛz] 'molasses'. Elsewhere, the coda *z* fails to trigger *e*-lowering (e.g., [tez] 'thesis', [bez] 'cloth', [tʃømez] 'rookie', etc.). Since the lowering of *e* before a sonorant coda is not consistent, the cases of eR$[2] where *e* is not lowered are treated as exceptions in the literature. *e*-lowering is also reported to occur unexpectedly before *z* (Dadan et al., 2024). The literature therefore posits a dual classification of exceptionality: the failure of lowering before a sonorant and its unsystematic application before *z*. If *e*-lowering in Turkish is phonological in kind, then its application must be exceptionless. In this study, I focus exclusively on the *e*-lowering triggered by a coda *z*.

Phonetics vs. phonology. That Turkish *z* patterns with sonorants in terms of *e*-lowering is by no means unexpected. Phonological representation and phonetic expression are under no requirement of isomorphism; indeed, the phonological behavior of a segment frequently diverges from the expectations derived from its articulatory properties. There are fricatives which behave like glides in Argentine Spanish (Harris & Kaisse, 1999), a sonorant which acts like a stop in Quechua (Gallagher, 2019), the uvular fricative which acts like a rhotic in French (Chabot, 2019), and so on. The lowering effect of Turkish *z* represents precisely such a case. The phonological identity of an item is deduced strictly from its phonological behavior (Chabot, in press; Kaye, 2005). Phonetic identity, being a sibilant in the case of *z*, is non-diagnostic for the determination of its phonological status.

Analysis. I argue that there are two phonologically distinct *e*'s in Turkish. The two objects are phonetically indistinguishable from each other but differ in their phonological properties: one undergoes lowering and the other does not. Using Element Theory (Backley, 2011; Harris, 1990, 1994; Kaye et al., 1985), the representations are depicted in (1). The *e* that undergoes lowering is an unheaded expression with **I** and **A** as dependents (1a), whereas the *e* that does not comprises the head **I** and the dependent **A** (1b). If neither undergoes any phonological computation, both are mapped onto [e] at the phonology-phonetics interface.

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[1] The aorist suffix is -(I/A)r. It takes a different shape, -z, when used after the negative suffix -mA except for 1SG and 1PL where it is zero.

[2] R denotes sonorants. $ indicates a syllable boundary.

(1) a. V | ↔ [e] (_ I A) b. V | ↔ [e] (I A)

The difference between (1a) and (1b) is a lexical one, so it cannot be predicted which *e* is present in a lexical item until it is followed by a sonorant coda. The lowering effect on *e* is achieved by **A** spreading from a sonorant coda (including *z*) to the closest vowel on its left. This follows from the constraint that **A** spreads only as a licensor (Börtlü, 2025). The element structure in (1a) is therefore a possible target for **A**-spreading whereas (1b) is not, since the latter already has a head and head-switching is forbidden in Turkish (Charette & Göksel, 1994).

(2) a. lexical item /pekmez/ ‘molasses’ b. lexical item /-lAr/ ‘PL’ c. after phonological computation

	V	C		C	V	C		V	C		
	|	|		|	|	|		|	|	↔	[ɛR]
	_	A		A	_	A		A ←	A		
	I	H		U	A			I			
	A							A			
/pekm	e	z/		/l	A	r/					

Considering all the Turkish vowels, **A** has two possible landing sites. One is the head position of the vowel in (2a) and the other is that of the vowel in the plural suffix -lAr[3] (2b). The output of **A**-spreading is given in (2c), where the spreading is marked with an arrow. After **A**-spreading, the two instantiations of **A**, one head and one dependent (in gray), are conflated into a single head (cf. Zdziebko (2015)) and the result, |A (I)|[4], is interpreted as [ɛ] at the phonology-phonetics interface. A final question is why a sonorant spreads its **A** only in coda position. In Strict CV terms, an intervocalic consonant is governed by a full nucleus, inhibiting its melody-sharing, whereas a coda is ungoverned, so **A**-spreading is free to apply.

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[3] The underspecified suffix-vowel A, which of course is not limited to the plural suffix -lAr, is conventionally symbolized this way to denote its alternation between [ɑ] and [e]. **A** spreads from a sonorant coda and **I**-spreading is due to vowel harmony, yielding |A (I A)|.

[4] Based on the acoustic measurements by Dadan et al. (2024), **A** as a head can be taken to correspond to a high F1 value.