
Stylistic Coherence and Lexical Constraints in Turkish

Social meaning of [e] ~ [æ] variation in Istanbul Turkish

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Overview

Base distribution: /e/ often lowers to [æ] before a tautosyllabic sonorant in Istanbul Turkish.

Variation: some words allow both [e] and [æ].

Question 1: Does [e] index formality while [æ] indexes casualness?

➤ Yes!

Question 2: Does their meaning depend on lexical expectations?

➤ Yes!

Background: e-lowering in Turkish

- In Istanbul Turkish, /e/ typically lowers to [æ] before a tautosyllabic sonorant coda {m, n, r, l}. (Göksel and Kerslake 2005; Gopal 2018; Dadan et al. 2025)

(1) Suffixation can **bleed** lowering

- a. $b\text{æ}n + i \rightarrow be.ni$
I + ACC 'me'
- b. $b\text{æ}n + de \rightarrow b\text{æ}n.de$
I + LOC 'at me'

(2) Suffixation can **feed** lowering

- a. $dede + m \rightarrow de.d\text{æ}m$
grandfather + 1SG.POS 'my grandfather'
- b. $dede + si \rightarrow de.de.si$
grandfather + 3SG.POS 'their(sg) grandfather'

- This rule is productive, but there are lexical exceptions to the pattern.

e-lowering in Turkish: exceptions and variation

- Some words resist lowering in Istanbul Turkish (standard variety).

(3) a.	de.n.ge		c.	e.l.bet
	‘balance’			‘certainly’
b.	me.m.le.ket		d.	my-be.r.ra
	‘country’			‘Müberra’

- Some words vary within and across speakers of the Istanbul variety.

(4) a.	he.m	~	hæ.m	‘both’
b.	my.he.n.dis	~	my.hæn.dis	‘engineer’
c.	be.l.ki	~	bæ.l.ki	‘maybe’

Previous work on social meaning and (stylistic co-)variation

- Variable production depends on internal (e.g., word category) and external factors (e.g., style)
- Previous work on ING variation in English (e.g., Trudgill 1972, Labov 2006, Campbell-Kibler 2009, 2010, among others)
 - **-ing** is associated with formal styles and higher SES & intelligence
 - **-in'** indexes Southern speech and lower SES, among other meanings.
- Variants pattern in constellations of covarying features, which speakers organize around stylistic schemata (Podesva 2008; Pharoa et al. 2014; Montgomery and Moore 2018; Vaughn 2022)
 - formal variants co-occur with formal variants (e.g., Buson et al. 2018)
 - Southern variants co-occur with Southern variants (e.g., Vaughn and Kendall 2019)

Are [e] and [æ] linked to different social meanings in the variable words?

The social meaning of [e] ~ [æ] variation

(4) a.	hem	~	hæm	‘both’
b.	my.hen.dis	~	my.hæn.dis	‘engineer’
c.	be.l.ki	~	bæ.l.ki	‘maybe’

- Prescriptive sources (e.g., RTÜK pronunciation guide) favor the use of [e] in these alternating words. (e.g., Demirel 2021, Günhan 2023)
- Speaker intuitions also suggest a formality difference between the two variants.
- These facts suggest that
 - [e] may index formality, educatedness and prestige
 - [æ] may index casualness, lack of education or non-standard varieties

This study

- Are Istanbul Turkish speakers sensitive to a stylistic contrast between [e] and [æ] in the variable words?
- **The linking assumption: stylistic coherence as a tool**
 - formal + formal = Natural & casual + casual = Natural
 - formal + casual = Less Natural

Q1. Do Istanbul speakers rate [e] as more natural in formal than in casual frames, and [æ] as more natural in casual than in formal frames?

Methods

- Matched guise perception experiment on PCIBex (Zehr and Schwarz 2018)
- Naturalness judgment task
- Fully crossed 2x2 within subjects

[e]	ønemli	ønemli
[æ]	ønæmli	ønæmli

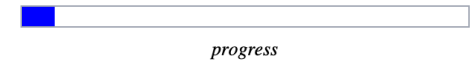
Experiment design

- Matched guise perception experiment on PCIBex (Zehr and Schwarz 2018)
- Naturalness judgment task
- Fully crossed 2x2 within subjects

	Formal (2pl:-niz)	Informal (2sg:-n)
[e]	Az önce önemli mi dediniz? 'Did you(pl) just say ... ?'	Az önce önemli mi dedin? 'Did you(sg) just say ... ?'
[æ]	Az önce önæmli mi dediniz? 'Did you(pl) just say ... ?'	Az önce önæmli mi dedin? 'Did you(sg) just say ... ?'

Experiment design

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Bu cümle kulağa ne kadar doğal geliyor?

Kulak tırmalyor  *Gayet doğal*

	Formal (2pl:-niz)	Informal (2sg:-n)
[e]	Az önce önemli mi dediniz? 'Did you(pl) just say ... ?'	Az önce önemli mi dedin? 'Did you(sg) just say ... ?'
[æ]	Az önce önæmli mi dediniz? 'Did you(pl) just say ... ?'	Az önce önæmli mi dedin? 'Did you(sg) just say ... ?'

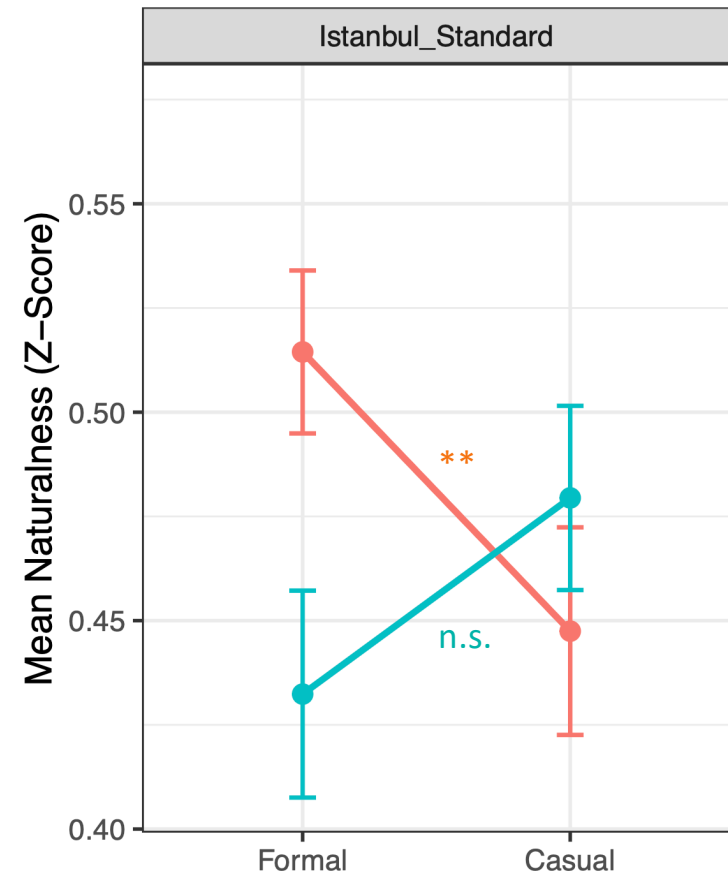
Materials and sample

- 10 target words × 4 conditions = 40 critical sentences
- Each speaker saw 20 critical items and 42 fillers, in 2 blocks
- Full-sentence recordings by a 29-year-old female speaker of the Istanbul dialect
 - listeners' sensitivity to subtle linguistic cues is most robust in naturally produced stimuli (Vaughn 2022)
- Norming for formality ($N=58$) and naturalness ($N=20$) of the frame
- Participants: 88 speakers of Istanbul variety

Target_Word	Gloss
<chr>	<chr>
1 elbette	surely
2 menfaat	benefit
3 pencere	window
4 kalem	pen
5 bel	waist
6 belki	maybe
7 mühendis	engineer
8 berrak	clear
9 önemli	important
10 çember	circle

Results: Main experiment

- Vowel × Formality: $\beta=0.100$, $p=.008$
 - Casual-frame penalty for [e]: $\beta=-0.060$, $p=.026$
 - No significant casual boost for [æ]: $p=.13$
- The crossover is driven mainly by a penalty on [e] in casual frames



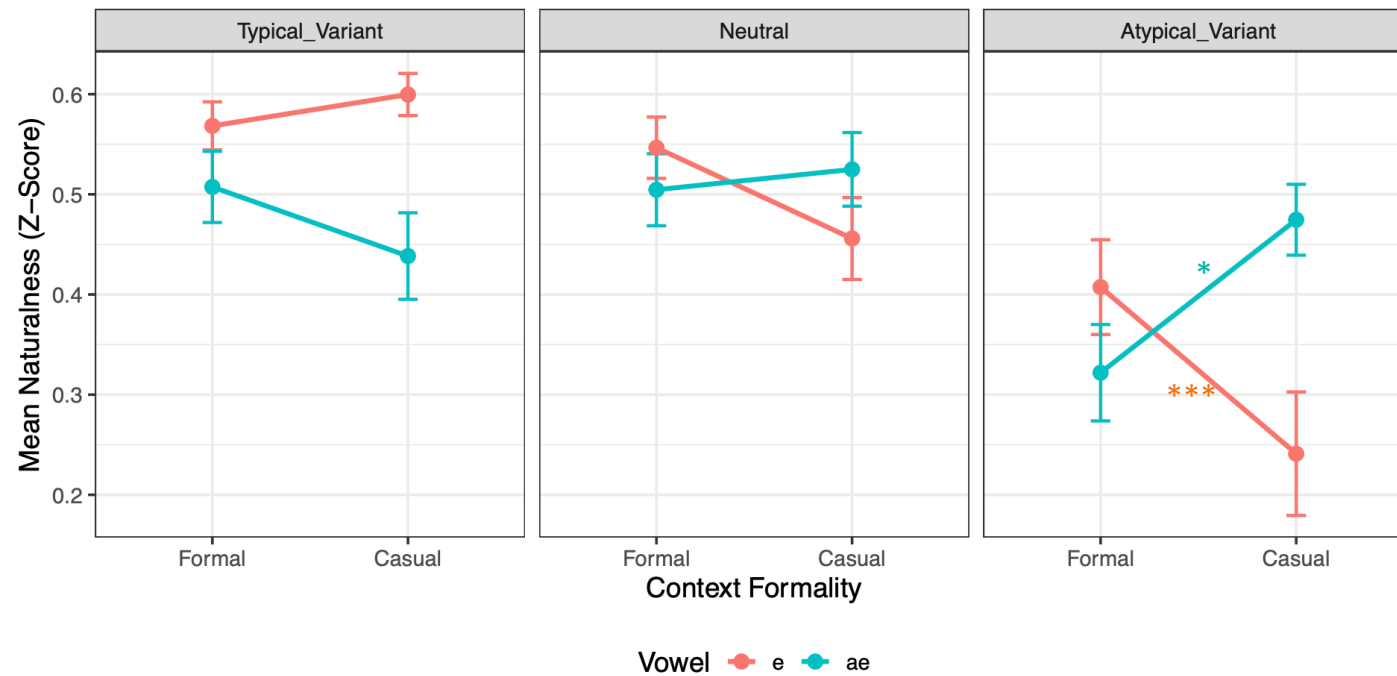
Post-hoc lexical norming

- Some target words showed a much stronger preference for [e] or [æ] than others.
- In a post-hoc norming task, Istanbul speakers (N=8) chose which variant they preferred for a target word out of context.
- If at least 5 of 8 Standard-Istanbul speakers agreed on the vowel, the item was treated as having a lexical preference.
- Trials were then coded as Typical, Atypical, or Neutral for the realized vowel. Typical and Atypical added to the model to re-analyze the main experiment results.

Target_Word	preferred_vowel
<chr>	<chr>
1 elbette	e
2 menfaat	e
3 pencere	e
4 kalem	e
5 bel	ae
6 belki	ae
7 mühendis	ae
8 berrak	Either
9 önemli	Either
10 cember	Either

Results with lexical norming

- Three-way interaction: $\beta = 0.370$, $p < .001$
- Typical words are largely stable across formal and casual frames.
- Atypical [e] is sharply penalized in casual contexts ($\beta = 0.18$, $p < .001$).
- Atypical [æ] is penalized in formal contexts, but the effect is smaller ($\beta = -0.09$, $p = .045$).



Discussion

- Listeners appear to penalize a vowel most when it violates both
 - the style of the frame
 - the lexical expectation for that word
- [e/æ] is not a simple (in)formal marker independent of context (i.e. lexical item).
- Lexical norms modulate the salience and interpretation of the variant.
- That fits a broader view of sociolinguistic perception:
 - salience depends on surprisal and on the interaction of multiple cues
(Jaeger and Weatherholtz 2016; see also Levon & Fox 2014; Pharao et al. 2014)
 - cumulative, word-specific experience influences social processing (e.g., Vaughn 2022)

Conclusion

- [e] ~ [æ] variation in Istanbul Turkish carries stylistic meaning, but that meaning is context-dependent.
- Overall, Istanbul listeners show that [e] is penalized in casual frames, while [æ] is more stable. However, there is interaction effect even for [æ] in atypical condition.
- The strongest penalties occur for lexically atypical realizations in the context of stylistic mismatch.
- A hierarchical account in which lexical expectations determine when a variant becomes socially salient and evaluated as such can account for the Turkish data.

THANK YOU

- Meredith Tamminga, David Embick, Marlyse Baptista, Wesley M. Lincoln, the Language Variation and Cognition Lab at Penn and audiences at NWA 53.