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NELS * November 6, 2020

Highlights

- In this talk, we present results of two experiments showing variable hiatus in Spoken Persian.
- Our production experiment reveals that variation is restricted:
 - elision of first vowel, which is cross-linguistically common (Casali 1997) is never attested
 - elision of the second vowel is rare with monosegmental suffixes
- The perception experiment confirms that elision of the second vowel is predominant in polysegmental suffixes, but rare with monosegmental suffixes.

Spoken Persian

- Many languages allow hiatus and others ban it. Spoken Persian presents an intermediate situation.
- When two underlying vowels appear at the root-suffix boundary /V-V/, the surface realizations vary between:
 - VV hiatus
 - VV V₂ elision
 - V?V epenthesis
- This variation is related to the length of the suffix (Jam 2015; Yazarlou 2014; Dehghan & Kord 2012):

	'our'	'his/her'	'my'	'the'	
dæftær	dæftær-emun	dæftær-e∫	dæftær-æm	dæftær-e	'office'
baba	baba-mun	baba-∫	baba-m	^{???/*} baba	'dad'
	baba-?emun	baba-?e∫	baba-7æm	baba-?e	
	baba-emun	baba-e∫	baba-æm	baba-e	
	*bab-emun	*bab-e∫	*bab-æm	*bab-e	0.00
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This study

We conduct two experiments to investigate how hiatus varies in Spoken Persian:

- production
 - small elicitation-based experiment
 - the principal aim is gauge the variation within and across speakers
- perception
 - larger controlled experiment
 - designed to specifically investigate the relationship between the three principal variants and their dependence on suffix length

Production: Methods

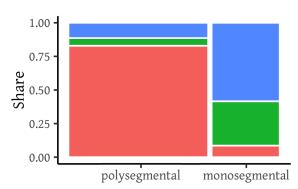
- Stimuli: 108 roots, 17 V-initial suffixes:
 - V₁: {i, e, a, o, u}
 - V₂: {i, e, æ, a, o}
 - Suffix length: -V, -VC, -VCVC
 - Root stratum: native, loanwords, nonce words
- Word-formation production experiment:
 - Familiarization stage: researcher provided C-final root + V-initial suffix
 - Main task: participant derived V-final roots + (the same)
 V-initial suffix
- 7 participants completed the experiment (mean age = 30)

V₂ elision, epenthesis and hiatus depend on suffix length

Results

- V₂ elision, epenthesis, and hiatus are the most frequent variants.
- The productions depend on suffix length (1,202 tokens):

elision epenthesis hiatus

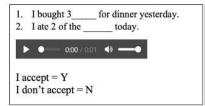


Perception: Methods

- Stimuli:
 - 30 V-final nonce roots
 - 3 monosegmental (-V) suffixes, 3 polysegmental suffixes
- Procedure:
 - Each participant judged acceptability of 30 nonce paradigms.
 - Each paradigm consisted of a bare and derived root.
 - Each of the paradigms appeared under three conditions (elision, epenthesis, hiatus; randomized), for a total of 90 items per participant.
- 54 participants (mean age = 29) completed the experiment.

Procedure

Sample experimental item

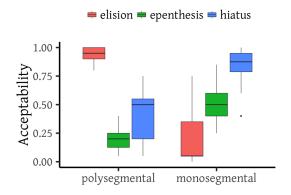


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 ا. دیروز ۳ تا _____ برای شام خریدم.
 ۲. امروز ۲ تا از ____ رو خوردم.
 میسندم = Y
 نمیسندم = N
```

Results by variant and suffix length

Results

- ullet V_2 elision is the most acceptable variant with longer suffixes.
- Hiatus is more acceptable than epenthesis across conditions.



Summary of results

We found that hiatus in Persian is variable:

- Variation in Persian is not random, but systematic.
- V₂ elision is the most common resolution with polysegmental suffixes, but rare with monosegmental suffixes.
- Hiatus and epenthesis are both possible, but the former is more frequent than the latter, regardless of suffix length.

Conclusions

Bigger picture:

- This is the first study showing the productivity of V₂ elision experimentally.
- Our experimental study shows that the hiatus resolutions typically found across languages can be observed variably in a single language.

Thanks to . . .

- our participants
- This work is supported by the University of Toronto and SSHRC Institutional Grant and Graduate Research Grant.





Social Sciences and Humanities Research Council of Canada Conseil de recherches en sciences humaines du Canada



Variable hiatus in Persian

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References I

- Becker, Michael, Nihan Ketrez & Andrew Nevins (2011). The surfeit of the stimulous: Analytic biases filter leixcal statistics in Turkish devoicing neutralization. *Language* 87. 84–125.
- Casali, Roderic F. (1997). Vowel elision in hiatus contexts: Which vowel goes? Language 73. 493–533.
- Casali, Roderic F. (1998). Resolving hiatus. New York: Garland.
- Casali, Roderic F. (2011). Hiatus resolution. In Marc van Oostendorp, Colin J. Ewen, Elizabeth Hume & Keren D. Rice (eds.) The Blackwell Companion to Phonology, Malden, MA: Blackwell. 1434–1460.
- Dehghan, Masoud & Aliyeh e Zafaranlu Kambuziya Kord (2012). A short analysis of insertion in Persian. Theory and Practice in Language Studies 2. 27–50.
- Estaji, Azam, Mojtaba Namvar Fargi & Sarira Keramati Yazdi (2010). An acoustic analysis of the glottal stop consonant and the investigation of hiatus in adjacent syllables in fast speech in Persian. *Language Related Research* **4**, 27–50.

References II

- Garrido, Marisol (2013). Hiatus resolution in spanish: Motivating forces, constraining factors, and research methods. *Linguistics and Language Compass* 7, 339–350.
- Goldwater, Sharon & Mark Johnson (2003). Learning OT constraint rankings using a Maximum Entropy model. In *Proceedings of the Workshop on Variation within Optimality Theory*, Stockholm: Stockholm University.
- Hayes, Bruce & Colin Wilson (2008). A maximum entropy model of phonotactics and phonotactic learning. *Linguistic Inquiry* **39**. 379–440.
- Hayes, Bruce, Kie Zuraw, Péter Siptár & Londe Zsuzsa (2009). Natural and unnatural constraints in Hungarian vowel harmony. Language 85. 822–863.
- Jam, Bashir (2015). Hiatus resolution strategies in Persian. *The Journal of Linguistics and Dialects of Khorasan* 12. 79–100.
- Kurisu, Kazutaka (2001). The Phonology of Morpheme Realization. Ph.D. dissertation, University of California, Santa Cruz, Santa Cruz. Available on Rutgers Optimality Archive, ROA 410, http://roa.rutgers.edu.
- Sadeghi, Ali Ashraf (1986). Vowel adjacency and the issue of epenthetic consonants. *Linguistics* **6**. 3–22.



References III

- Shaghaghi, Vida (2000). An investigation of the vowel adjacency in Persian. Language and Literature 9. 1–14.
- Yazarlou, Samaneh (2014). Glottal stop in hiatus: An acoustic investigation in Persian. *Procedia Social and Behavioral Sciences* **136**. 12–20.
- Zuraw, Kie (2017). Variable component interaction: data from tagalog nasal substitution. In Heather Newell, Máire Noonan, Glyne Piggott & Lisa Travis (eds.) *The structure of words at the interfaces*, Oxford: Oxford University Press. 126–140.