

Morphological priming in Turkish: Evidence from heritage speakers

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Linguistic Background

- Previous studies have reported that heritage speakers (HS) struggle with inflectional morphology, especially with irregulars.
- Polinsky & Scontras (2020) proposed the notion of ‘limitations of online resources’ as one possible reason. According to this notion:
 - HS show resistance to irregularity → less efficient processing / smaller priming effects of irregulars
 - HS draw on knowledge from other non-grammatical resources, i.e., semantic and/or orthographic
- However, little evidence on real-time processing data in HS.

Aims

1. Exploring the mechanisms HS employ to process regularly and irregularly inflected word forms
2. Determining the potential differences to non-heritage control speakers (CTR)
3. Investigating the supposed ‘limitations of online resources’ in HS

Design & Procedure

- We tested the Turkish aorist. Regular verbs take the *-Ar* type suffix while 13 monomorphemic verbs are irregular and take the *-Ir* type suffix.
- The stimuli came in four conditions controlled for length, lemma and whole-word frequencies, two morphological and two control:
 - Regular aorist (12 monomorphemic verbs)
 - Irregular aorist (12 monomorphemic verbs)
 - Orthographic (12 word-initial orthographic overlap)
 - Semantic (20 semantically related pairs)
 - + 114 fillers

	Related Prime	Unrelated Prime	Target
Regular	duyar ‘hears’	bekle ‘wait’	DUY ‘hear’
Irregular	gelir ‘comes’	zaman ‘time’	GEL ‘come’
Orthographic	devre ‘period’	üslup ‘style’	DEV ‘giant’
Semantic	kafa ‘head’	merkez ‘center’	BAŞ ‘head’

- We employed the visual masked priming technique
- 500 ms blank screen followed by 500 ms of a standard forward mask (#####), 50 ms of prime and 500 ms of the target word
- RT and accuracy analysis
- Variability analysis, by subtracting the log-transformed RTs for the related primes from the log-transformed RTs for the unrelated primes, separately for each condition and individual participant.

Participants

- CTR group
 - 40 non-heritage L1 Turkish speakers from Istanbul
 - 36 women, mean age 36.13, TELC test 19.88
- HS group:
 - 97 Turkish-German bilingual speakers from Berlin/Potsdam
 - 53 women, mean age 32.91, TELC test 18.55, age of arrival 10.11

Reference

Polinsky, M., & Scontras, G. (2020). Understanding heritage languages. *Bilingualism: Language and Cognition*, 23(1), 4-20.

RT and Accuracy Results

Condition	Prime Type	CTR	HS
Regular	Related	563.49 (6.82)	596.60 (5.60)
	Unrelated	579.65 (6.61)	621.03 (5.92)
Irregular	Related	563.81 (7.17)	588.83 (5.34)
	Unrelated	576.42 (8.47)	605.67 (6.41)
Orthographic	Related	585.45 (9.16)	629.95 (8.15)
	Unrelated	590.08 (9.09)	642.33 (7.70)
Semantic	Related	593.32 (6.35)	618.58 (5.35)
	Unrelated	594.87(6.70)	638.26 (5.61)

- Accuracy rate was high for both groups in all conditions (> 90.8%)

RT Analysis

Morphological conditions:

- Both groups performed similar in the morphological conditions, showing significant priming effects for both regular and irregular aorist forms.
 - CTR: Regular ($t = -2.140$); Irregular ($t = -1.946$)
 - HS: Regular ($t = -4.330$); Irregular ($t = -3.437$)

Control conditions:

- The CTR group displayed no priming for orthographic and semantic control conditions.
- The HS group exhibited priming in the semantic condition ($t = -2.407$), but not in the orthographic condition.

Variability Analysis

- The aim was to explore inter-individual variability of the priming effects within both participant groups.
- HS showed significantly more variability than the CTR group in two conditions:
 - **Irregular** (CTR group: mean: 14.18, SD: 44.86; HS group: mean: 22.97, SD: 81.53; $F = 4.206$; $p = 0.042$)
 - **Semantic** (CTR group: mean: 2.61, SD: 45.30; HS group: mean: 12.33, SD: 70.93; $F = 5.563$; $p = 0.019$)

Conclusions

- (1) Morphological decomposition (of regular aorist forms) functions in the same way for HS as for non-heritage speakers.
- (2) Morpho-lexical access (of irregular aorist forms) is more variable within the HS group than in the CTR group, possibly reflecting a more diverse linguistic experience amongst HS than within the CTR group.
- (3) HS efficiently employ semantic (but not orthographic) cues during morpho-lexical processing, unlike the CTR speakers.

→ No support for any general online processing limitations in HS!

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