

Cross-linguistic Imitation in Naive Listeners: A Case Study in Greek

Erik Morris¹, Ioana Chitoran¹, Hiyon Yoo¹

¹*Université Paris Cité (France)*

Overview: This experiment examines cross-linguistic imitation in L1 French speakers with no prior Greek experience. Assessment of imitation is measured by Proximity and Change In as used by Schertz and Johnson [1]. We hypothesize that imitation functions cross-linguistically [2] with level of imitation in the L1 congruent with levels in a foreign language. Higher imitators in French will be high imitators in Greek, low imitators in French likewise low in Greek.

Stimuli: We examine eight obstruents in Greek not present in French, four phonemes and four allophones, along with four phonemes that are native to French (Table 1). 20 L1 Greek speakers were recorded, and 12 selected for use as stimuli in the experiment; four (2F, 2M) from each region (Athens, Thessaloniki, and Crete). They recorded 166 Greek words, with 48 selected for the imitation portion; all containing phonemes foreign to French. One L1 French speaker (F) from the Paris region acted as the model talker for French, recording 48 French words. All words, in both languages, were recorded in a carrier phrase and come in minimal pairs differing only by the word-initial consonant (Table 2).

Procedure: 10 French L1 speakers (6F) have been recorded so far with a further 18 in progress. Participants began with a self-paced reading of the 48 French words, as a baseline. Next, the French imitation used three blocks, with participants instructed to actively imitate the speaker. Finally, a post-imitation reading of the same word list. In the Greek imitation task, each French participant completed three blocks, each block using all 12 Greek speakers to assess imitation of the Greek language rather than a single speaker. Model talker tokens, in both languages, were presented in randomized order by OpenSesame [3].

Analysis: Imitation is assessed per target obstruent, with the average across all tokens of an obstruent compared to the average from the model talker(s). Higher imitation is seen in smaller values for Proximity and Change In relative to their baseline. Values for these are determined based on acoustic measures for each obstruent and the following vowel (Table 3). Greek averages are grouped by region, with the possibility of one regional variety being easier/more often imitated.

Expected Results and Implications: In line with Sancier and Fowler [2] we expect that a high imitator in their L1, will also be a high imitator in a foreign language. Despite testing naive participants we still expect an inherent proclivity to imitate will distinguish some participants who more readily adapt to foreign input. Multiple dialect exposure in the input may create a more difficult target for imitation/acquisition. If true, we expect to see an equal level accuracy in producing foreign Greek obstruents across participants regardless of their level of imitation in French. Conversely, improved adaptability from increased speaker and dialect variability may offer long-term benefits to learners making them readily able to handle real-world interactions outside a classroom. A longitudinal study with active learners of Greek is needed to test this.

Table 1: Target Obstruents

	Dental/Alveolar	Palatal	Velar
Plosive	t, d	c, ʃ	k, g
Fricative	θ, ð	ç, ʝ	x, ɣ

Table 2: Example Words

Greek		French	
κήπο	κόπο	commet	gommait
γένει	δένει	connais	donnais
θύτης	χύτης	téter	gaieté

Table 3: Acoustic Measures

Fricatives	Duration, Spectral Moments (CoG, Variance, Skew, Kurt) at beginning and midpoint
Stops	Total Duration, Closure Duration, VOT, Spectral Moments (CoG, Variance, Skew, Kurt) of burst, Burst amplitude
Vowels	Duration, Formants 1-3 at beginning and midpoint

References

- [1] Schertz, J., & Johnson, E. K. (2022). Voice onset time imitation in teens versus adults. *Journal of Speech, Language, and Hearing Research*, 65(5), 1839–1850.
- [2] Sancier, M. L., & Fowler, C. A. (1997). Gestural drift in a bilingual speaker of Brazilian Portuguese and English. *Journal of Phonetics*, 25(4), 421–436.
- [3] Mathôt, S., Schreij, D., & Theeuwes, J. (2012). OpenSesame: An open-source, graphical experiment builder for the social sciences. *Behavior Research Methods*, 44(2), 314–324.