

Category Split. The case of the acquisition of Russian posterior sibilants by American L2 learners

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The Russian sibilant inventory, with secondarily palatalized, ‘soft’ dentals /s^j z^j/ and the ‘hard’ series /s^v z^v ts^v/ is more complex than the corresponding portion of the consonantal inventory in English: where English has just one series, Russian has two, where English has zero, Russian has one (/ts^v/). Additionally, in the posterior area, Russian has a parallel distinction between ‘soft’ (long) /ɕ:/ and the hard /ʂ^v/. Further, a ‘soft’ posterior voiceless affricate differs in articulation from the English counterpart – it is pronounced with more raising of the tongue towards palate than the English one, and ‘hard’ voiced /ʐ^v/ - articulated with velarization rather than palatalization.

(1) Phonemic distinction in Russian sibilants

		Soft dentals	Hard dentals	Soft posteriors	Hard posteriors
Fricatives	Voiceless	s ^j	s ^v	ɕ:	ʂ ^v
	Voiced	z ^j	z ^v	-	ʐ ^v
Affricates	Voiceless	-	ts ^v	tc	-
	Voiced	-	-	-	-

In this study, we investigate (a) the acoustics of the Russian sibilants as acquired by the American learners, in particular, their noise quality and duration, (b) the development of the categories contrasting in softness as the level of speaking proficiency in the foreign language increases, and (c) whether the presence of the acoustic characteristics of the sibilant noise in L2 learners corresponds to that in Russian native speakers as discussed in Kochetov (2017). Finally, we test (d) whether the presence of the corresponding sound which relies exclusively on the softness distinction, such as /s^v- s^j/ facilitates/accelerates acquisition. Regarding the latter, we test whether the development of the shaded categories follows a different path than that of categories represented without shading.

28 learners of Russian – native speakers of English – participated in the study, with approximately equal number of subjects at a beginning (after the first semester), intermediate and advanced level. Intermediate and Advanced participants had scored in the Intermediate or Advanced range on an ACTFL Oral Proficiency Interview by computer (OPIc). Subjects were recorded reading words (in a carrier phrase) containing the targeted sounds in initial, medial and final position. The recordings were manually annotated with Praat and measurements of spectral moments and segment duration were extracted using a Praat script.

The preliminary results – the sample including 15 subjects out of 28 - show that across speakers and competence levels, hard dentals have the highest COG with insignificantly lower COG for

soft dentals. Much lower are COG for soft posterior sibilants and hard postalveolars. The difference between postalveolars and prepalatals in our sample is also significant. Preliminary results indicate that the quality of friction seems to be essential in the production of the contrast between prepalatals, hard postalveolars and the dentals as a broader category, but not in the contrast between palatalized and non-palatalized dentals, similarly to the findings for L1 Russian (Kochetov 2017). For the latter, other cues than quality of the friction and its duration, such as formant transitions, must play a role. Further analysis will help to verify this claim.

Preliminary results show no significant differences between COG values for individual places of articulation across levels of proficiency. This would suggest relatively early acquisition of contrasts foreign to L2 learners, which then remain stable as other language skills improve. This finding needs to be re-evaluated based on the data from all 28 participants.

In the preliminary results – the duration of the prepalatal fricative /ç:/ was significantly longer than all other categories in all but the final position. This corresponds to the results reported in Kochetov (2017) for Russian native speakers and might result from the general articulatory difficulty to maintain prolonged consonantal articulation in a position before a pause.

References

Kochetov, A. (2017). Acoustics of Russian voiceless sibilant fricatives. *Journal of the International Phonetic Association*, 47(3), 321-348. doi:10.1017/S0025100317000019