

## **The perception of Norwegian retroflexes by L1 Polish L3 Norwegian speakers:**

### **Discrimination and rated dissimilarity tasks**

Polish-English bilinguals and Polish-English-Norwegian trilinguals participated in an oddity categorial discrimination task and rated dissimilarity task. Triads in the oddity task were made up of tokens of consonant categories that contained both retroflexes (i.e.,  $\text{ʈ ɖ ʂ ʎ ɳ}$ ) and non-retroflexes (i.e.,  $\text{t d s l n}$ ) in the inter-vocalic position, e.g., /'gɑʈɑ/ /'gɑʈɑ/ /'gɑtɑ/. Specifically, the assessment concerned discrimination sensitivity in L3 Norwegian among various pairs of Norwegian retroflexes/non-retroflexes, evaluation of retroflex and rhotic (dis)similarity across the three languages. Rated dissimilarity task included tokens of two Polish consonant categories, two English consonant categories, and two Norwegian consonant categories. The aim of this study was to investigate the perception of Polish and Norwegian retroflexes and English rhotics by L1 Polish L3 Norwegian learners. The same speakers were tested on the rated dissimilarity on a 1-7 scale between L3 Norwegian (non-)retroflex consonant and Polish or English matching/non-matching consonants (e.g., Norwegian /t/ was matched with Polish /t/ and English /t/, while Norwegian /ʈ/ was matched with Polish /ʈʂ/ and English /tʃ/; non-matching involved the same pairs but juxtaposed cross-linguistically between Norwegian and Polish/English) in order to assess if Norwegian consonants are perceived as closer to L1 or L2 matching/non-matching consonant categories. Results from the discrimination task supported the claim that /ʂ/-/s/ discrimination is enhanced (96% accuracy rating; 0,942s RT) compared to other pairs, as a similar phonemic distinction is present in their L1 and L2 phonological repertoire. As learners are not familiar with either /ʎ/ and /ɳ/, we expected these two to be equally bad perceived. That is only partially supported by the outcomes: although much worse accuracy ratings we obtained for /ʎ/-/l/ (39%, 1,538s RT), that is not apparent for /ɳ/-/n/ (81% accuracy rating; 1,230s RT). Highly accurate discrimination between /ʈ/-/t/ and /ɖ/-/d/ pairs (both elicited 87% correct responses with 1,067s and 1,161 RT, respectively) may imply that the participants resort to L1 Polish phonological space, which is argued to manifest allophonic retroflexes /ʈ/ and /ɖ/. Results from rated dissimilarity tasks involving Norwegian and Polish/English consonant pairs showed that listeners were more sensitive to differences in Polish, as the distribution between matching and non-matching was as high as 2.078 points on the scale, while in English it was 1,529 points. Furthermore, the difference for participants blurs when Norwegian retroflexes are compared with Polish and English matching/non-matching consonants.

**Keywords:** crosslinguistic similarity, perception, discrimination, rated dissimilarity, Polish, Norwegian, English, retroflexes

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