



Exploring the patterns of cross-linguistic influence in the acquisition of stops by L1 Polish – L2 English – L3 Norwegian speakers

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Although acquisition of stops in multilingual learners has been investigated quite extensively, most studies tend to focus on the production of voiceless category (e.g., Sypiańska 2013, Wrembel 2015, Llama & Lopez-Morelos 2016) whereas the voiced one remains largely unexplored. However, evidence from research on L2 (Wojtkowiak & Schwartz 2019) and L3 (Gabriel et al. 2018) suggests some asymmetry in acquisition of voiced stops. As far as L3 perception is concerned, this topic has also received scant attention with the existing data pointing to possible cross-linguistic interactions in multilingual perception (e.g., Wrembel et al. 2019, Nelson 2020, Wrembel et al. 2020). However, no study to date has been devoted to categorical perception of plosives in L3 learners.

The aim of this PhD project is, thus, to fill this gap by analysing the production and perception of both categories of stops (/p, t, k/ and /b, d, g/) in all three languages of L1 Polish – L2 English – L3 Norwegian speakers and to explore their cross-linguistic interactions. In particular, the study aims to investigate whether patterns of VOT production and categorisation of VOT continua are specific to a language and place of articulation, as well as to see which language might be a driving force in this process. The current contribution is part of a larger scale longitudinal study and reports on the data collected from the first testing time (T1). Participants included 23 speakers of L1 Polish, L2 English, L3 Norwegian, aged 19, who were first year students of Norwegian Studies at two Polish universities. At T1, the participants had been learning L3 Norwegian intensively for eight weeks.

In the production task, the speakers were asked to read three word lists separately for each language including stop tokens in stressed onset positions controlled for the vocalic context. The stimuli were presented on a computer screen and the recording sessions were conducted in language blocks on separate days. The obtained sound files were force-aligned using WebMAUS (Kisler et al. 2017), and the VOT boundaries were manually corrected in Praat (Boersma & Weenink 2021). The VOT durations were then extracted with the use of Praat script (Lennes 2002). Results indicate that the trilingual learners show unique VOT patterns for each of their languages and place of articulation, which suggests that they keep their L1/L2/L3 systems apart. The results show that VOT durations for L3 Norwegian stops are in-between those produced in Polish and English for voiceless series while they approximate Polish values for voiced stops.

The study design of the perception task involved preparation of VOT continua with the use of Praat script (Winn 2020) based on one-syllable minimal pairs with word initial stop sounds (/p,b,t,d,k,g/) that were obtained from recording native speakers of Polish, English and Norwegian. Each step of the continua differed from the other by 10 ms. The participants took part in three separate experimental sessions (one per language) conducted in PsychoPy, in which they were asked to listen to the words from the continua and decide whether they hear a voiced or voiceless sound at the beginning of each word. The results show unique patterns of categorisation of VOT continua for each language and place of articulation. Ongoing investigation with comparison to T2 and T3 will allow to track the development of VOT acquisition patterns in L3 learners.

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