A persistent question in the study of third language (L3) acquisition is how the newly acquired language interacts with the learner’s previously acquired linguistic systems, and how these patterns of interaction may vary as a consequence of factors like the degree of phonetic similarity between target phones in each language and the degree to which they have acquired certain sounds in their non-native language. We present the results of an experiment addressing these questions, specifically by looking at the way in which the presence of an allophonic lenition pattern in learners’ L2 (Spanish) influences their production of similar phonemes in an L3 (Portuguese).

This study expands upon previous research examining whether the first language (L1) or second language (L2) can be identified as the primary source of influence on the evolving L3 system. Within the literature there is strong support for the L2 status effect [1, 2] in which the learner’s L2 is preferentially selected as the source of influence into the L3 regardless of factors such as the typological relationships between the L1, L2 and L3 or the relative phonetic similarity of phones in each language. However, much of the research supporting the L2 status effect has focused on distinctions, such as VOT contrasts, that have been shown to influence learners’ production patterns very early in the acquisition process [3]. We wanted to examine whether this same pattern of greater influence from the L2 would be observed for allophonic contrasts that only begin to be observed in production later in the acquisition process for adult L2 learners. We therefore investigated whether the phonetic realization of voiced stop lenition by L2 Spanish speakers would influence their production of voiced stops in their L3, Brazilian Portuguese (BP), as this lenition process is not only acquired relatively late by L2 Spanish speakers [4, 5] but also contrasts with the fully occlusive voiced stops systematically observed in both this dialect of Portuguese and in English.

12 students of BP were recruited from university-level advanced Portuguese classes; 6 of these students, the control group, were L1 English/L2 Portuguese learners, while the 6 in the experimental L3 group were L2 Spanish/L3 Portuguese learners with at least an intermediate level of proficiency in each language. Speakers were recorded reading a series of randomized word lists in each of their languages with the presentation of stimuli blocked by language and the order of presentation counterbalanced between sessions. Each word list was comprised of 100 sentences using a carrier phrase, with 60 of the sentences containing a target word with at least one word-medial /b/, /d/ or /g/; each speaker read three word lists in each language for a total of 60 tokens per speaker per phoneme. Acoustic measurements including the duration of the target consonant, the minimum intensity during the consonant, and the maximum intensity of the following segment were then recorded for each target word, and two relative intensity measurements commonly used in voiced stop lenition studies (C/V Intensity Difference and C/V Intensity Ratio) [6] were then calculated using these measurements.

The results of this experiment provide strong evidence that the lenition pattern acquired by L2 Spanish/L3 Portuguese speakers in their L2 influences these speakers’ production of voiced stops in their L3, despite the greater phonetic similarity between English and BP voiced stops along this dimension. While L2 Portuguese speakers were observed to produce stops of relatively similar intensity in both English and Portuguese, L3 Portuguese speakers produced stops with higher relative intensity measurements for voiced stops in Portuguese than in English (Figure 1), with the values recorded for Portuguese extremely similar to their Spanish measurements for most speakers (Figure 2). This mirrors results in previous studies on VOT production in by L3 learners, and supports the hypothesis that the L2 occupies a privileged position as a source of influence in L3 acquisition.

Phonological Influence in Third Language Acquisition: L2 Spanish Effects on the Production of L3 Portuguese Voiced Stops
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**Figure 1:** Between-groups comparisons of C/V Intensity Ratio (left) and C/V Intensity Difference

**Figure 2:** L3 Group C/V Intensity Ratio values by speaker
