

L1 use predicts imitation of metrical features in a typologically different L2

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During the process of second language acquisition, both L1 phonemic and intonational categories might be subject to transfer from the L1 to the L2 [1,2]. Among prosodic features, the early-acquired metrical properties of the L1 might shape L2 prosody and be partly the basis of the perception of Foreign Accent (FA). Moreover, we know that the amount of L1 use can directly impact FA degree in perception for late and advanced L2 learners [4]. This hypothesis predicts that a higher degree of L1 use would result in an increase in prosodically induced FA. Here we investigate the impact of Italian L1 metrical features on the direct imitation of French L2 primary stress and final lengthening, in both a production and a perception study, and whether L1 use is a better predictor of FA than traditional language proficiency scores. Though French and Italian are both Romance languages, they are typologically very different from a prosodic point of view. Specifically, while foot structure is iambic in French, it is trochaic for Italian. Furthermore, in French, the domain of main stress is phrasal, so that the last full syllable of the Accentual Phrase (AP), which is lengthened [7]. Instead, in Italian the domain of stress implementation is the prosodic word, with prominence being generally located on the penultimate syllable whose nucleus is significantly lengthened if the syllable is open [3]. We can thus predict that metrical FA produced by Italian learners of French can be due to incorrect lengthening/shortening of the penultimate and/or the last syllable in the target word. Moreover, if we predict, as in [4], that the development of new phonetic categories within the L2 might be slowed down by the continuative use of L1, we also expect a reinforcement of FA indices for Italian L2 learners of French displaying a high degree of L1 use.

In order to test our hypotheses in production, we employed a direct Imitation Paradigm [cf., 5]. Twenty-one Italian learners of French (ITs) were recorded in 3 separate Tasks. In the Baseline Task, participants read aloud the target words randomly presented on a computer screen. In the Imitation Task, participants were told that they would be listening to a recording of a French-native speaker and that they should try to imitate the way she uttered the sentence. During the Generalization Task, participants were given a second set of sentences, which they had not previously heard nor seen, and were asked to read them without the help of any recordings. Participants were selected on the basis of the results of an Ethnic Orientation Questionnaire [2]. To evaluate language proficiency, we used the Cloze Test [8] and a Read-aloud task [3]. The total set of experimental materials consisted of 10 target words (5 low frequency and 5 high frequency,) having the same syllable structure (CV) and same number of syllables (3). All stimuli were always inserted in the middle of a carrier sentence (ex. *Je n'ai pas mangé de SALAMI depuis le voyage en Alsace* 'I have not eaten SALAMI, since the trip to Alsace'). We measured the duration of the penultimate syllable (CVP) and that of the last syllable (CVL).

In line with our hypothesis, the duration of CVP decreased from Baseline to Imitation ($\beta=-3.014$, $SE=7.231$, $t=4.168$), and to Generalization ($\beta=-4.390$, $SE=7.131$, $t=-6.153$) as shown in Figure 1 (left). The duration of the word-final syllable (CVL), on the other hand, increased from the Baseline to the Imitation Task ($\beta=4.423$, $SE=5.504$, $t=8.945$) as well as from the Baseline to the Generalization Task ($\beta=4.225$, $SE=5.303$, $t=7.968$) as shown in Figure 1 (right). However, we found a significant effect of L1 use on both penultimate and word-final syllable duration. Indeed, results for the Baseline Task show longer durations for the penultimate syllable ($\beta=1.231$, $SD=3.561$, $t=3.458$), accompanied by shorter word-final syllable durations ($\beta=-5.687$, $SE=7.013$, $t=-8.109$), for L1_High speakers. Instead, L1_Low speakers did not show shorter duration of the penultimate syllable ($\beta=7.002$, $SD=3.238$, $t=0.256$) nor longer word-final syllable durations ($\beta=7.031$, $SE=4.869$, $t=6.893$). Note also that degree of L2 competence, as opposed to L1 use, did not predict the effects ($\beta=1.493$; $SE=1.124$, $t=1.328$).

FA degree was also evaluated in perception through an XAB perception test, in which X was a sample utterance from the French model speaker productions while A and B consisted of a word produced by the learners chosen either from the Baseline (B) or from the Imitation (I) productions. A group of forty French natives listeners judged the similarity of A and B utterances relative to X.

Degree of perceived similarity (percentage of Imitation items selected) was significantly affected by Task and by degree of L1 use. In fact, as it can be seen from Figure 2 (left) while, globally, the items produced during the Imitation Task were classified as more similar to the native model ($z=4.976$, $p<0.001$), the percentage of I items selected increased mainly as a function of L1 use ($z=8.046$, $p<2.295$). Only for the L1_Med group did reaction times decrease from Baseline to Imitation ($\beta=-8.12$, $SE=29.59$, $t=-30.03$) as shown in Figure 2 (right). In summary, our results show that prosodic representations are flexible and can be rapidly modified in the course of the Imitation Task, as also shown in [6]. In fact, our results show that the degree of metrical FA was reduced through limited exposure to L2 input (Baseline vs Imitation). Besides, the newly learnt patterns were retained in memory, during the Generalization Task. Finally, these results give further support to the hypothesis that L2 phonetic learning is dependent of the amount of L1 use, and not to standard L2 proficiency.

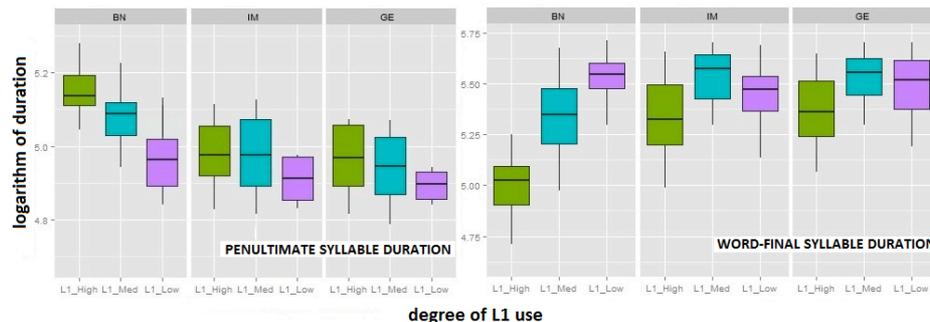


Figure 1: Boxplots for penultimate syllable log duration (CVP, left) and word-final syllable log duration (CVL, right). Data are shown across Task (BN: Baseline; IM: Imitation; G: Generalization) and of L1 use group (L1_Low, L1_Med and L1_High).

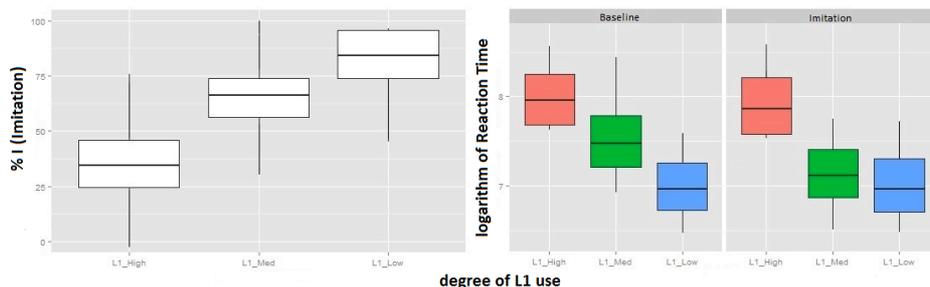


Figure 2: Percentage of I choice in the XAB Task (left) and logarithm of Reaction Times (right). Data are shown across group of L1 use (L1_Low, L1_Med and L1_High), and also for Task (Baseline, Imitation) for the reaction times data (right).

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