Spanish imperatives produced by proficient Chinese learners of Spanish: The differences in prenuclear pitch accent and boundary tones
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According to the L2 Intonation Learning theory (LILT), the acquisition of L2 prosody can be influenced by a learner’s L1 prosody [1]. Intonation languages like Spanish use pitch for pragmatic purposes, whereas tonal language like Mandarin realizes pitch specifications on lexical level to distinguish semantic meanings, and intonation does not largely distort the pitch contours of lexical tones [2]. As a result, when Mandarin speakers learn distinctive L2 Spanish intonational patterns, they may transfer the pitch specification from the lexical level to the sentence level while neglecting the pitch configurations required for accurate intonation [3]. This study focuses on how Mandarin learners of Spanish realize the intonation of Spanish imperatives. Spanish imperatives can function as commands or requests, characterized by a rise-fall or falling boundary tone. At the morpho-syntactic level, despite the typical imperative mood, wh- and yes-no questions in indicative mood can also function as requests, with a low boundary tone [4]. In contrast, Chinese imperatives (commands and requests) are mainly marked by a low/falling boundary tone, and the use of wh- or yes-no questions for conveying requests is infrequent [5]. In the prenuclear position, Spanish imperatives may show a pitch accent of L+<H*. However, L+<H* is not attested in Chinese. Based on the contrastive analysis between Chinese and Spanish, our first hypothesis is that Chinese students may realize imperative wh- and yes-no questions with falling or rising boundary tones, respectively, as they do with information-seeking questions [3]. Moreover, the F0 peak of L+<H* aligns with the post-accentual syllable, but Mandarin learners of Spanish consistently realize stressed syllables with a high pitch, both at the lexical level and in running speech [6]. Therefore, our second hypothesis is that Chinese students would not show the prenuclear pitch accent of L+<H* but rather produce the F0 peak within the stressed syllable.

A total of 16 Mandarin speakers (12 females) with advanced Spanish proficiency and 9 native Castilian Spanish speakers (6 females) participated in a discourse completion task. The task contained 12 contexts designed to elicit four types of sentences: imperative command (imp-comm), imperative request (imp-req), imperative wh-question (imp-wh), and imperative yes-no question (imp-y/n). We extracted 10 equidistant pitch points from each phoneme and generated time-normalized pitch contours using z-scored F0 values. For each of the 12 sentences, we built a Generalized Additive Mixed Model (GAMM) where the dependent variable was the normalized F0. The independent variables included a smooth for the interaction of speaker group (Chinese students vs. Spanish natives), a smooth for the interaction of gender (female vs. male) over time (normalized pitch points), and a random smooth for each individual speaker. Figure 1 illustrates the post-hoc comparisons between speaker groups across the four sentence types.

The GAMMs demonstrated significant differences in F0 contours between Chinese students and Spanish natives across all 12 sentences. The post-hoc comparisons are summarized as follows: Firstly, both Chinese students and Spanish natives produced similar low/falling boundary tones in imp-comm, imp-req, and imp-wh. Surprisingly, contrary to the expected low boundary tone reported in [4], Spanish natives produced a rising boundary tone in imp-y/n, possibly as a politeness strategy [7]. Chinese students, on the other hand, did not show consistent patterns for boundary tone, employing either a rising tone or a low falling tone. Secondly, as anticipated, Spanish natives produced an F0 peak at the post-accentual syllable in imp-wh and imp-y/n. However, Chinese students produced an F0 peak within the accented syllable. Thirdly, in imp-req with a Verb-Object structure, Mandarin speakers tended to realize the F0 peak in the accented syllable of the imperative verb. This may be attributed to the influence of their L1 Mandarin, where the predicate verb in imperative sentences is focused [8].

All in all, the results highlight that Mandarin speakers tend to exhibit L1 prosodic patterns in their L2 Spanish speech, which contributes further evidence to the crosslinguistic influence in speech prosody, supporting the predictions of the LILT. This finding underscores the importance of paying closer attention to the intonational patterns of Spanish during the learning process.
Figure 1: Groupwise comparisons of F0 contours of the Spanish sentences estimated by GAMM for each sentence type, from top to bottom: imp-comm, imp-req, imp-wh, and imp-y/n. The shaded area of each contour paints the 95% Confidence Interval. The purple squared shades illustrate significant contrasts in intonation contours between Chinese students and Spanish natives.

References