The Intonational Phonology of Requests in L2 Spanish

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# Author note

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# Abstract

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# 1. The Intonational Phonology of Requests in L2 Spanish

# 2. Introduction

All languages make use of F0, and its phonological correlate pitch, at the post-lexical (phrasal) level to encode phrasal boundaries and pragmatic meaning. We refer to this usage as “intonation” (Arvaniti & Fletcher, 2020). For example, intonation in some languages can be used to differentiate sentence modality or expressing doubt (Ladd, 2008); another use, under investigation here, is to express politeness (Brown & Levinson, 1987).

Intonation in modern linguistics is only recently receiving more attention. Where previous models treated intonation with the goals of speech synthesis (Hart et al., 1990) or pedagogy (Pike, 1945), Ladd (2008) and colleagues spearheaded the field of intonational phonology and developed the Autosegmental Metrical theory of intonational phonology (henceforth AM) from which to study intonation from a phonological perspective. The vast majority of research on intonation investigate monolingual speakers, but there do exist recent works that investigate L2 intonation strategies (Astruc & Mar Vanrell, 2016), as well as attempt to model L2 intonation (Mennen, 2015).

Some researchers propose that there is a universal correlation between higher pitch and politeness Brown & Levinson (1987). Unde this belief, it would be expected that L1 and L2 speakers alike would pattern similarly in their use of higher pitch to demarcate politeness.

The current research undertaken here investigates the L2 intonation system by looking at L1 English L2 Spanish intonational strategies to express varying levels of politeness. L2 Spanish utterances will be annotated using ToBI within AM framework, and nuclear configurations will be compared with expected L1 Spanish nuclear configurations. Furthermore, the mean pitch of the utterance and the height of the final boundary tone will be investigated as a function of politeness to see if there is support for a universal association between high pitch and politeness.

## 2.1 Politeness

Brown & Levinson (1974) provide a landmark investigation in linguistic expressions of politeness. In their conception, politeness strategies are used to mitigate face threatening acts, which can attack an individual’s negative face, one’s basic claim to freedom of action and from imposition, or positive face, the self-image one has of oneself and the desire for it to be appreciated and approved of. Politeness strategies are similarly divided into negative politeness strategies, used to minimize the effects of an inevitable face threatening act, and positive politeness strategies, where an individual attempts to align themselves closer with the interlocutor and demonstrate that they share their desires. For example, negative politeness strategies may include being pessimistic about the interlocutor’s response to a request, using questions, and using more complex syntax to hedge (e.g., in Spanish, the imperfect subjunctive); positive politeness strategies, on the other hand, may include using in-group identity markers, seeking agreement on safe topics, or presupposing common ground.

The decision to opt for a specific politeness strategy depends on a cost-benefit analysis of three binary factors: power, social distance, and level of imposition of request. These three independent variables, Brown & Levinson (1974) claim, are assigned different values cross-culturally, which account for the rich diversity in cultures globally.

Power can come from both material and metaphysical sources. Naturally, certain conceptions of power can have more sway in some contexts than others. Monetary power in a bargaining situation would hold much more sway than in a situation where a student is asking for help on an essay from a writing center.

Social distance is characterized by how socially close two individuals are. For example, the social distance between two siblings are typically much lower than the social distance between two students who don’t know each other. Of note, a student and a professor who have a close relationship may have a very low social distance, but an imbalance of power. Significantly, social distance here does not refer directly to the distance assigned to them based on their station, but to their personal relationship.

Finally, the level of imposition of request transparently refers to how imposing the request is. For example, asking someone to borrow a pencil is a low imposition in nearly all situations; however, asking anyone at all to borrow their expensive laptop proves to be a much higher imposition.

In the current study, the three identified factors will be closely controlled for in the context of the United States university environment, appealing to the target population of college students. The specific situations will be defined below.

## 2.2 Autosegmental Metrical Theory

Within the AM framework (Ladd, 2008), the continuous phonetic cue F0 is mapped categorically to ordered strings of Low (L) and High (H) tones that attach to stressed syllables, called pitch accents, and edges of phrases, called boundary tones. Significantly, the phonological representations are not meant to include all elements of pitch modulation, just as all phonetic elements are not recorded for segments. That is, phonetically distinct contours may be realization of the very same underlying phonological element. Thus, the goal of AM is not to record every phonetic detail of F0, but to understand how F0 maps to discrete, categorical tones that express meaning (Ladd, 2022).

The abstract, phonological representation of intonation with the AM framework is carried out through the Tones and Breaks Indices (ToBI) tool, originally developed for General American English (Silverman et al., 1992). This tool has also been developed for Spanish, called Sp\_ToBI (Beckman et al., 2002). Of note is that ToBI requires that each variety of a language have its own ToBI defined, based on its individual intonational inventory. For example, various varieties of English Silverman et al. (1992) and Spanish (Prieto & Roseano, 2010) have since been documented using ToBI.

[Figure 1](#fig-tobi-example) gives an example of an utterance labeled using ToBI. ToBI associates a sound file with its spectrogram and pitch track, as well as several tiers of intonation. The typical structure is a transcription tier, typically divided into syllables and represented with either the language’s orthography or IPA, a tone tier, where pitch accents and boundary tones are aligned with their associated syllables, and optionally a break index tier, representing the perceived strength of prosodic boundaries.

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| Figure 1: The utterance “Ana lleva el abrigo” (“Ana is wearing a coat”) labeled using ToBI. |

On the tone tier, pitch accents are represented with **\*** (e.g. H\* represents a High tone associated with a stressed syllable), while **%** is associated with boundary tones (e.g. H% is a High boundary tone at the end of a phrase). A **-** is used to represent a phrase boundary that is not utterance final (e.g. H- is a High phrase boundary). As mentioned above, tones can be combined to represent rises and falls, and when used as pitch accents, the **\*** indicates the tone that is most associated with the stressed syllable. For example, H\*L is a fall, where the peak is within the stressed syllable; HL\* represents a fall where the peak occurs either before or at the very start of the stressed syllable. Crucially, each ToBI system will define how an underlying representation can be realized, such that “H\*L” may not be phonetically realized as the same in two different languages or two different varieties of the same language.

## 2.3 L2 Intonation

AM has been primarily developed to investigate L1 intonation, but there have been recent attempts to expand intonation investigation into the L2 domain. For example, Mennen (2015) has proposed the theoretical model L2 Intonation Learning Theory (LILt). Four dimensions of intonation are recognized under this model with the goal of characterizing the similarities and differences between the intonation inventories between two languages:

1. The inventory and distribution of categorical phonological elements (“systemic” dimension)
2. The phonetic implementation of these categorical elements (“realizational” dimension)
3. The functionality of the categorical elements of tunes (“semantic” dimension)
4. The frequency of use of the categorical elements (“frequency” dimension)

The LILt model, as demonstrated by the specified dimensions, are primarily concerned with L1-L2 transfer effects. That is, it is predicted that a language learner acquiring an L2 will experience positive transfer effects when the intonation systems align along one or more dimensions, whereas they will experience negative transfer when they do not align. For example, English and Spanish differ in how they express polite responses to wh-questions. Where English uses a broad pitch range in its rises, represented with by the nuclear configuration L+¡H\* (where **¡** represents an extra High tone), Spanish uses a narrow pitch range, represented by L+H\* (Estebas-Vilaplana, 2014).

The differences here have a significant impact on the acquisition of Spanish by L1 English speakers. Although English speakers have available to them L+H\*, the expected contour in Spanish, and it is realized phonetically similarly, there is a mismatch in the *semantic* dimension. That is, L+H\* in this scenario maps to an “over-excited” response in Spanish, giving rise to miscommunication and misinterpretation when interacting with monolingual L1 Spanish speakers.

The intonation of Spanish in L1 English L2 Spanish learners will be investigated under the basic tenets of AM, using ToBI to document their underlying contours, as well as work to test the LILt model’s predictions on L1-L2 intonation transfer. Broadly, it is expected that where General American English and Spanish match, L1 English L2 Spanish learners will experience positive transfer; where there are mismatches along any of the dimensions, they will experience negative transfer. That is, we expect to see typical English contours in their Spanish.

## 2.4 Pitch and Politeness

Although AM takes for granted the arbitrary nature of sound to meaning correspondences that dominate human language, some researchers propose that some aspects of pitch-meaning correspondences are non-arbitrary. For example, Ohala (1983), in his “frequency code”, the use of pitch in human language evolved from a cross-species use of F0, where higher pitch is “nonthreatening, submissive, subordinate, in need of the receiver’s cooperation and good will”, whereas lower pitch is “aggressive, assertive…” (p. 8). He claims that these correspondences are cross-linguistic, citing the universality of F0’s use to distinguish sentence modality. That is, cross-linguistically, low pitch is associated with statements (“assertiveness”), whereas high pitch is associated with questions (“in need of the receiver’s cooperation and good will”). Under this belief, using higher pitch is a cross-linguistic method of expressing politeness.

This belief is supported by Brown & Levinson (1987). They give Tzeltal as an example, where politeness is marked by high pitch or falsetto. They claim elsewhere that there is a universal association between high pitch and tentativeness (Brown & Levinson, 1974).

Given the cited research, it would be expected that some of the earliest politeness strategies adopted by L2 learners would involve pitch, as opposed to (morpho-)syntax or semantics, as they already have the correspondence between higher pitch and politeness available to them in their L1. This is in opposition to more syntactically complex expressions of politeness strategies, such as using the imperfect subjunctive.

Importantly, as demonstrated by Estebas-Vilaplana (2014), a broader pitch range in a given *pitch accent* is not always positively associated with politeness. As such, this, along with Ohala (1983)’s frequency code, gives motivation to examine pitch more broadly along two dimensions: the overall mean pitch of an utterance and the height of the final boundary tone of the utterance.

## 2.5 Previous Research

# 3. Scraps

Fundamental frequency (F0), and its phonological correlate pitch, is used cross-linguistically for a variety of functions. While some languages modulate F0 at both lexical and post-lexical levels, some languages, such as English and Spanish, primarily modulate F0 at the post-lexical level. At this level, we refer to the modulation as “intonation”, in which case it encodes pragmatic meaning and phrase boundaries.

Given these proposals, it would be expected that prosodic features may be some of the first politeness strategies positively transferred from the L1 to the L2, due to the crosslinguistic similarities and ready availability. A variety of politeness strategies require more complex morpho-syntactic transformations (cite brown here), but something as simple as using higher pitch to express increasing politeness is something available to even the most neophyte language learner. This study aims to investigate the intonational resources that L2 Spanish speakers have available to them.

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