Was That a Question?: Andalusian and Puerto Rican Spanish Listeners and the Perception of Final Fall Terminal Contours (FFTC)

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1 Introduction

A topic that has received particular interest in intonational variation is the use of High Rising Terminal (HRT) intonation contours, especially in different varieties of English, including Australian English and New Zealand English. HRT contours are particularly salient and often stigmatized in many dialects of English. There have been several attempts to investigate this feature from a pragmatic perspective (Ching 1982, Meyerhoff 1991), but also from a sociolinguistic standpoint (Allan 1990, Guy, Horvath, Vonwiller, Daisley, and Rogers 1986).

The interpretation (or misinterpretation) of different sentence types has been described in languages such as English, for example the case of High Rising Terminals or uptalk, which consists of a rising intonation at the end of declarative sentences. Our purpose is to explore the potential for linguistic confusion in Final Fall Terminal Tune (FFTT) in declarative utterances by listeners from a dialect without this pattern. In Spanish, a declarative statement like *María viene* 'María is coming' (Figure 1a) and its interrogative counterpart *¿María viene?* 'Is Maria coming?' (Figure 1b) differ only in the intonational contour with which they are produced, since both are syntactically and lexically identical. Previous research has demonstrated that Caribbean dialects can have Final Falling Tonal Contours (FFTC) in declaratives and interrogatives (Armstrong 2010, Willis 2010). Our goal in the current paper is to explore the potential for confusion in FFTCs in Spanish.

2 Literature Review

2.1 High-Rise Terminals

Uptalk, or High Rise Terminal (HRT), is found in many varieties of English and is defined by Warren (2016:2) as 'a marked rising intonation pattern found at the ends of intonation units realized on declarative utterances, and which serves primarily to check comprehension or to seek feedback.' Research on HRTs indicates variation across dialects in the precise timing and degree of the final rise, as well as social indexing. In some cases, there is an overlap in form with interrogatives. Britain and Newman (1992) and Warren and Daly (2000) both examined final rises in the so-called intonation questions (i.e., questions that are not marked syntactically) in New Zealand English. They observed that the production of this type of sentence might begin as early as the onset of the nuclear syllable or as late as the onset of posttonic items. As Britain (1992) highlight, some pragmatic and other factors related to group membership may contribute to the variability in the alignment of the utterance-final rise.

In a more experimental approach, Zwartz and Warren (2003) examined whether the alignment difference between rise onsets in statements and questions has functional meaning. They collected perceptual data from 19 native speakers of New Zealand English. The authors used two sets of materials, one using a male voice and another using a female voice. These "voice actors" were young native speakers of New Zealand English. For each utterance, they manipulated the pitch to produce two groups of five experimental utterances for each speaker. They designed a forced-choice decision task and included each of the stimuli in the instrument. The task for the participants was to determine if the utterance they heard was a statement or a question, and then to indicate on a five-point scale how confident they were in that choice. By changing the starting point of the rise, but keeping the endpoint of the rise constant, the contours ranged from a relatively shallow slope to a much sharper rise.

Zwartz and Warren (2003) show that a declarative utterance with a final rise may cause

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confusion for speakers not familiar with the dialect or intonational pattern, as final boundary rises are most often associated with interrogatives in American English.[1] Kim (2023) and Kim and Repiso-Puigdellura (2021) argue that final rises in uptalk are found in several varieties of Spanish and that, in some cases, they may be similar if not identical. They propose that the understanding of potential linguistic and social meaning is limited, and the topic is understudied.

2.2 Dialectal Variation on Intonation in Spanish

There is considerable intonational variation among Spanish dialects. Sosa (1999) claims that one of the most characteristic factors that permit a hearer to determine the geographic origin of a speaker is precisely that of intonation and that there are important differences in dialectal regions, both across countries and within regions of each country (1999:177). What has not been documented in Spanish is if these differences in intonational contours, argued to be phonologically contrastive, result in distinct interpretations similar to minimal pairs at the segmental level which have been debated for some contours in English (Zwartz and Warren 2003).

2.2.1 Spanish Intonation Atlas (2010)

In the current study, we focus specifically on two Spanish dialects, Western Andalusian (southern Spain) and Puerto Rican Spanish (located in the Caribbean). These two dialects are described to have a different distribution of pitch contours for three types of sentences according to the Atlas Entonativo del Español (Prieto and Roseano, 2010), namely broad focus declarative sentences, information-seeking (absolute) yes-no interrogatives, and counter-expectational (confirmation) questions (Figure 1 below shows an example of the three sentence types under consideration in the current study for Andalusian and Puerto Rican Spanish). This atlas of Spanish intonation is a collaborative project aimed at collecting the different intonational productions of various regions of the Hispanic world. A closer inspection of the pitch contours reported by Estebas-Vilaplanas and Prieto (2010) on Castilian Spanish, Congosto Martín (2011) and Henriksen and Amaya (2012) on Western Andalusian, and Armstrong (2010) on Puerto Rican Spanish, revealed overlap in the three types of sentences previously mentioned, leading to hypothesize that there could be a mismatch in the phonological interpretation of sentence meaning as perceived by listeners of these regions.

2.2.1.1 Andalusian Spanish

Henriksen and García-Amaya (2012) analyzed the intonation patterns in the Jerezano variety of Andalusian Spanish using speech data from three male and six female speakers. They also employed a follow-up questionnaire to test the intonation of negation confirmation questions. They used the Sp_ToBI system of intonational labeling to analyze the data. One significant finding of the study is that neutral vs. biased intents in statements are expressed through different pitch patterns, with L* L% indicating a neutral intent and L+H* L% indicating a biased intent. The study also found that the same tonal configuration, L* HH%, marked both information-seeking and confirmation yes/no questions in the first questionnaire, while L+H* HH% was observed in more specific confirmation contexts, and H* HH% was dominant in echo yes/no questions. The nuclear syllable in neutral wh-questions showed two-pitch patterns: falling H+L* or rising L+¡H*, with L% as the boundary tone in both cases. The study found that the right periphery mid-boundary tones (M%) and complex boundary tones were minimally productive in the Jerezano corpus, distinguishing Jerezano Andalusian Spanish from Castilian Spanish and behaving more like Canarian Spanish (Cabrera Abreu and Vizcaíno Ortega 2010).

2.2.1.2 Puerto Rican Spanish

Puerto Rican Spanish falls directly into the Caribbean dialect, and the intonational patterns share

[1] See Kim (2023) for a complete discussion of meanings and nuance of the final boundary rise in English and among Heritage Speakers of Spanish in California.

common tonal configurations. Traditionally, Caribbean Spanish varieties have been considered "radical" in their lack of a fall-rise intonation pattern in nuclear position for yes-no questions, typically found in other Spanish varieties. Armstrong (2010) notes that Puerto Rican Spanish favors L*+H in the prenuclear position, which is found in many types of statements, questions, and commands. L+H* is commonly found in nuclear position for narrow focus statements and exclamative statements and frequently at intermediate phrase boundaries for statements. She also proposes the need to incorporate the monotonal pitch accent L* into the Sp_ToBI for a range of nuclear configurations for tag questions, incredulity questions, polite and exhortative requests, and statements of the obvious.

Puerto Rican Spanish has a prenuclear rising pitch accent for broad focus statements, characterized by a flat low tone throughout the accented syllable followed by a rise in the posttonic syllable. This rise is heavily favored in Puerto Rican Spanish for broad focus statements. The final pitch movement for broad focus statements in Sp_ToBI is characterized by a fall throughout the accented syllable of the final word, labeled as !H+L*. This fall is produced within a compressed pitch range, resulting in a lower high tone than expected.

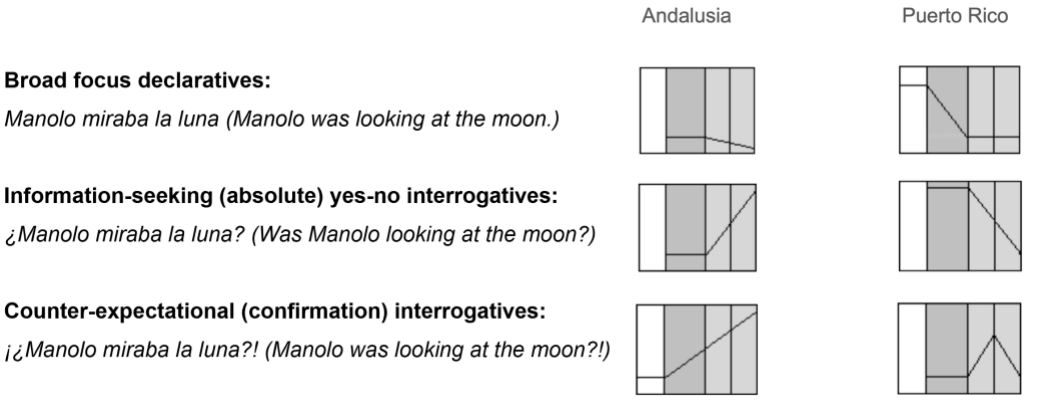

Figure 1: Nuclear pitch configurations comparative contours for broad focus declaratives, information-seeking absolute interrogatives, and counter-expectational interrogatives as produced by Andalusian and Puerto Rican speakers (from Prieto and Roseano 2010).

2.3 Research Questions

RQ1. Do Andalusians and Puerto Ricans associate previous intonational characterizations with reported utterance-type contours for their dialect?
RQ2. How do Andalusians and Puerto Ricans interpret variable final rises or final fall tone intonation contours that vary from their reported contours?
RQ3. Do Andalusians and Puerto Ricans distinguish between types of interrogatives, general absolute and counter-expectational, with different patterns?

3 Methodology

3.1 Stimuli Utterances and Actors

The stimuli for the perception tasks were produced by two Puerto Rican actors (male and female voices), and one Andalusian actor (male voice). Each actor read each of the four utterances corresponding as a broad focus declarative, an absolute interrogative, and a counter-expectation interrogative (3 speakers x 4 sentences x 3 semantic meanings = 36 target utterances).
Target sentences:

(1) Amaba a la nena ‘S/he loved the girl’
(2) Llamaba a la niña ‘S/he called the little girl’
(3) Miraba la luna ‘S/he was looking at the moon’

(4) Bailaba en la gala ‘S/he was dancing at the ball’

The utterances were controlled for length, with each utterance containing three content words, with penultimate stress, and limited to sonorant consonants (m, n, r, l, b, d, g, j). The intonation contours produced were compared and confirmed to match the general tonal patterns and pitch accent alignments described in the Interactive Atlas of the Intonation of Spanish.[2] The Puerto Rican and Andalusian utterances were distributed over two perception tasks described in the next section. The two tasks have an even distribution in the sentence and utterance type between the actors. We included many distractor questions that formed part of a separate project.

3.2 Tasks

The instrument was created and conducted in the online application Qualtrics.[3] There were the tasks. The first task was part of the familiarization training and involved an initial adjustment of sound loudness. The participant was asked to click on a button to hear a clear tone and adjust the volume on their speakers or headphones to make the audio comfortable. We requested headphones, but since not all distant volunteer participants had headphones, we concluded the experiment with a task question about their participation mode. We had two main goals with the tasks. The first was to probe the listeners’ evaluation of the "goodness" of the contour they heard and the second was to determine their categorical perception of the utterances as statements or interrogatives, Participants were asked to click on a speaker icon to hear each audio and then make an evaluation. The audio files were presented in randomized blocks with multiple task and distractor types.

3.2.1 Task 1: Congruity Matching

This task explored the congruency of an utterance and a potential context. The listeners listened to an audio and were then asked to associate the audio with one of five possible responses that would best be associated with and prompted by the specific utterance they heard.

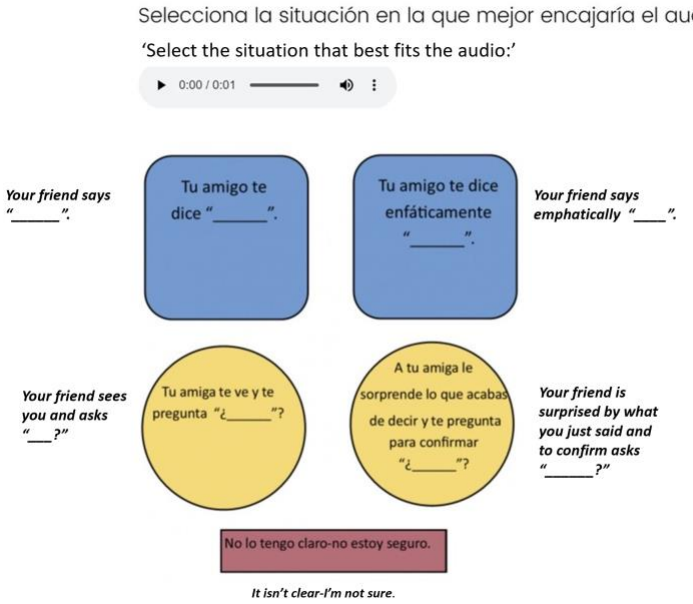

Figure 2: Congruity matching task with five contexts, each corresponding to a different sentence type: broad focus declarative, emphatic (narrow focus) declarative, absolute interrogative, counter-expectational interrogative, and ‘I don’t know’.

[2] http://prosodia.upf.edu/atlasentonacion/index.html
[3] https://www.qualtrics.com/

The association response was realized with a click or touch of the screen, depending on the device. The area identified corresponded to a heat-map area associated with each potential response. The three responses were the utterance types, declarative, absolute interrogative, and counter-expectational context. We also included two extra choices: “declarative with emphasis” and “I don't know”. Figure 2 shows the design of the congruity task.

3.2.2 Task 2: Visual Analog Scale Slider

The second task was intended to explore the listeners’ confidence in the decision or ‘goodness’ of the production with a slider option for the participant evaluations. The listeners listened to each audio file (one at a time and distributed along different blocks) and were asked to evaluate the utterance on a continuum slider to indicate the degree of declarative-ness or interrogative-ness for each audio, and at the same time, the degree of confidence for each utterance. The slider had a polar declarative-interrogative continuum with percentage mark ticks, 100%-50%-0-50%-100%, to indicate the degree of confidence and to reduce intermediate numerical biases. Negative response values indicated that the listeners perceived a declarative, whereas positive response values indicated an interrogative. A response value of 0 was considered an indifferent or ‘I do not know’ option. Figure 3 shows the design of the visual analog scale slider.

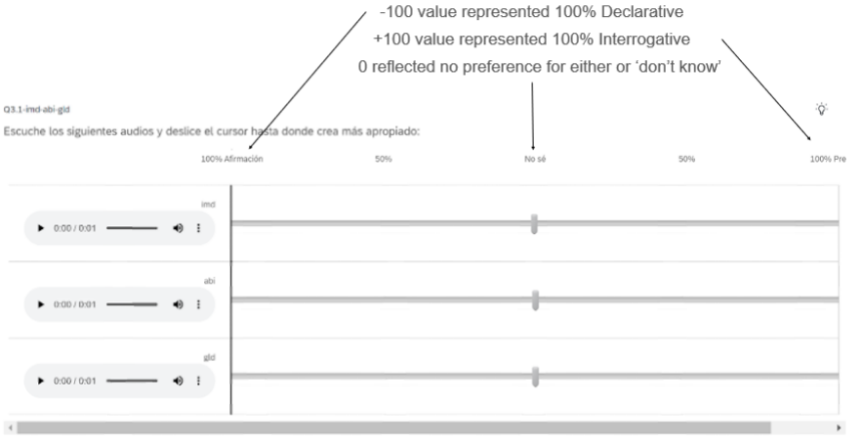

Figure 3: Visual analog scale slider task where the left side represents the declarative option, the right side the interrogative option, and the middle point ‘I don’t know’.

3. 3 Listeners

The online Qualtrics survey was sent out to individuals in both the Puerto Rican and Andalusian communities through invitations extended to friends and colleagues. To ensure control over the demographics of the study participants, we included a background questionnaire at the end of the survey. This questionnaire asked for information about age, gender, and place of birth, among other demographic details.

A total of 92 listeners participated in the study, with 57 from Puerto Rico and 35 from Andalusia. Among the Puerto Rican informants, the majority reported being from San Juan and Mayagüez, and most were university students at the University of Puerto Rico. Most Andalusian informants resided in Morón de la Frontera, a town in the south of Seville, while others reported living in the Seville metropolitan area.

4 Results

4.1 Congruity Task

4.1.1 Andalusians

Results for the Andalusian productions are shown in Figure 4. For the declarative sentences, Puerto Rican listeners interpreted these as either 'Emphatic Declarative' (50.63%) or 'Declarative' (45.57%), while Andalusians mostly associated these productions as 'Declarative' (54.72%), or 'Counter-Expectational Interrogative' (30.19%). In the case of absolute interrogatives, Puerto Ricans answered either 'Absolute Interrogative' (52.66%) or 'Counter-Expectational Interrogative' (38.30%). Andalusians followed the same trend but with slightly different distributions, with 'Absolute Interrogative' (56.25%) and 'Counter-Expectational Interrogative' (28.57%). In terms of the counter-expectational productions, Puerto Ricans generally associated these with 'Counter-Expectational Interrogative' (72.91%) or 'Absolute Interrogatives' (19.21%), while Andalusians mostly selected either 'Counter-Expectational Interrogative' (45.22%), or 'Absolute Interrogative' (41.74%).

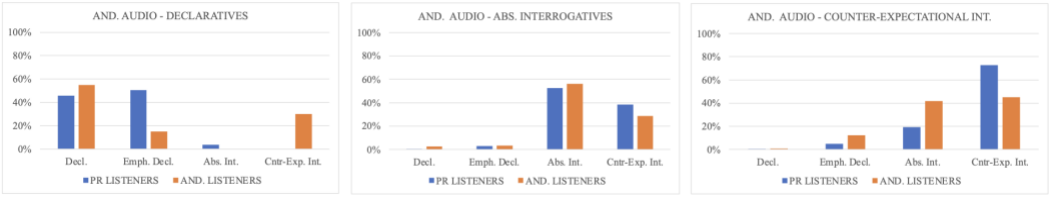

Figure 4: Andalusian productions for the three types of sentences as perceived by Puerto Rican listeners (blue) and Andalusian listeners (orange).

4.1.2 Puerto Ricans

Results for the Puerto Rican productions are shown in Figure 5. Puerto Rican listeners interpreted declarative sentences mostly as either 'Declarative' (57.1%) or 'Emphatic Declarative' (29.7%). In comparison, the Andalusian listeners had more variation in their answers interpreting these sentences as 'Declarative' (44.26%), 'Emphatic Declarative' (19.57%), or 'Counter-Expectational Interrogative' (11.49%). In the case of the absolute interrogative sentences, Puerto Ricans mostly perceived these as either 'Absolute Interrogative' (54.44%) or 'Counter-Expectational Interrogative' (37.63%). Andalusian listeners followed a similar trend, with most of the listeners identifying these sentences as 'Counter-Expectational Interrogative' (47.26%) or 'Absolute Interrogative' (37.97%). Counter-expectational productions were interpreted as 'Counter-Expectational Interrogative' (76.33%) or 'Absolute Interrogative' (16.61%) by Puerto Rican listeners. In comparison, Andalusians perceived these sentences primarily as 'Emphatic Declarative' (40.32%), 'Counter-Expectational Interrogative' (26.53%), or 'Absolute Interrogative' (19.1%).

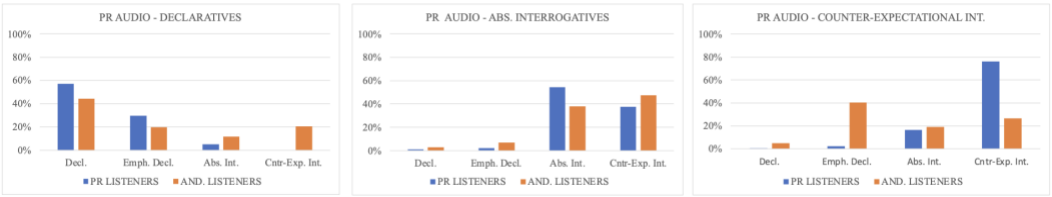

Figure 5: Puerto Rican productions for the three types of sentences as perceived by Puerto Rican listeners (blue) and Andalusian listeners (orange).

4.2 Visual Analog Scale Slider Task

4.2.1 Andalusians

Figure 6 shows the results for the visual analog scale slider for Andalusian listeners. The Andalusians were able to identify the declarative utterance contour with its matched semantic intent and the patterns described in the Atlas characterizations. We note the presence of a few outliers for all three utterance types. We also note that there was only one male Andalusian speaker that was

evaluated.[4] The Andalusian listeners were able to associate the Puerto Rican declarative contours with a declarative semantic meaning. The Andalusians were able to associate the Puerto Rican absolute interrogative contour with a question meaning but with less confidence as values were below the 50% marker and in clear contrast to their perceptions of Andalusian interrogative productions. The counter-expectational interrogatives from Puerto Rico were associated with a declarative meaning by the Andalusian participants but with a range of values that indicate a lowered level of confidence. The Andalusian listeners were able to match the counter-expectational meaning of their own dialect with a high level of rating.

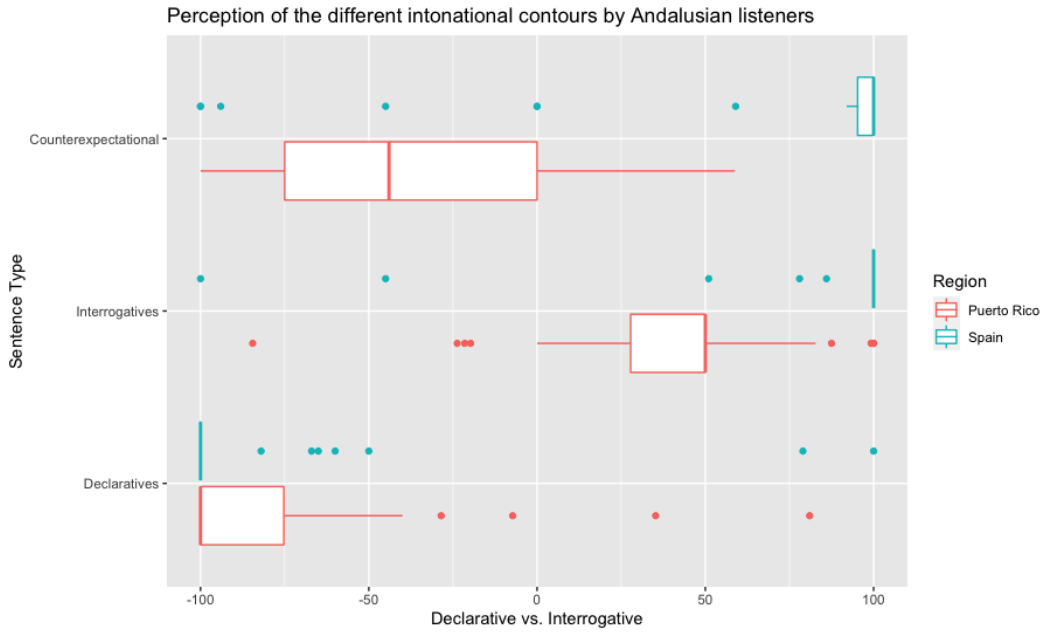

Figure 6: Results for the visual analog scale slider for Andalusian listeners.

4.2.2 Puerto Ricans

Figure 7 shows the results for the visual analog scale slider for Puerto Rican listeners. The Puerto Rican listeners were able to associate the prescriptive declarative contour from both dialects for declarative utterances as declarative utterances for both dialects with a high level of certainty. The absolute interrogatives from Spain were correctly associated with the normative intonational contour more so, or with less variation, than for their own Puerto Rican interrogatives. Similarly, the Puerto Rican listeners consistently associated the counter-expectational interrogative contours with an interrogative meaning. The Puerto Ricans were again more consistent in their higher rankings for the Andalusian contours than for the Puerto Rican contour. Declaratives were identified as declaratives, and both types of interrogatives, absolute and counter-expectational, were heard as interrogatives for both their own dialect as well as the Andalusian.

[4] We note that the use of one speaker was to primarily confirm that the Andalusian contours correspond with the previous reports.

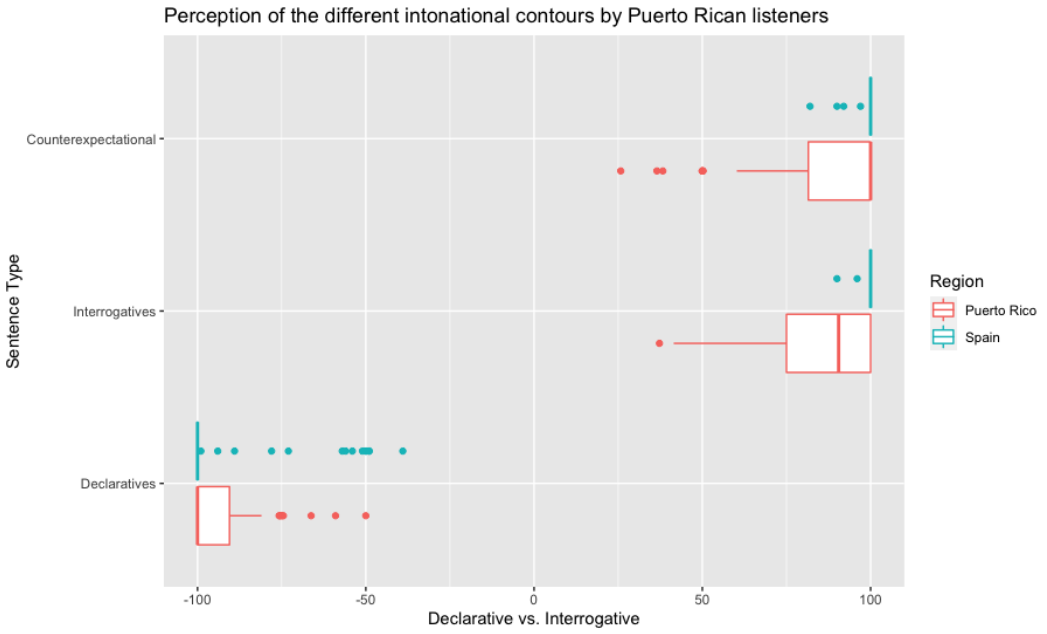

Figure 7: Results for the visual analog scale slider for Puerto Rican listeners.

5 Discussion

5.1 Research Questions

5.1.1 RQ1. Do Andalusians and Puerto Ricans associate the reported utterance types according to previous intonational characterizations for their dialect?

This question is addressed in the congruity task in which listeners identified the context that was most appropriate for the utterance. Our findings indicate that Andalusian listeners generally associate the intonational patterns previously described for declaratives, broad-focus interrogatives, and counter-expectational questions with the different semantic meanings; however, there is considerable fuzziness between the broad focus and emphatic interpretations for both declaratives and interrogatives. Likewise, the Puerto Rican listeners consistently associate the reported contour patterns with considerable category permeability with respect to focus.

5.1.2 RQ2. How do Andalusians and Puerto Ricans interpret variable final rises or final fall tone intonation contours that vary from their own reported contours?

This question was answered with the Visual Analog Scale Slider task in which listeners rate the degree of certainty that the utterance was a statement or an interrogative. The Andalusian listeners were able to associate final falling contours with a declarative utterance and generally associated the absolute interrogative with a final falling terminal intonation, but the ratings indicated less confidence in the evaluation. The counter-expectation contour with a nuclear low tone followed by a boundary rise-fall was consistently judged to be a declarative utterance with a mean rating of 46% and a range of variable confidence that ranged from 0-75%. In other words, Andalusians hear falling absolute interrogatives as questions but are less than 50% confident that it is an interrogative. Andalusians interpret the counter-expectational interrogative incorrectly as a declarative with a wide range of variability. The Puerto Rican listeners were able to consistently and appropriately identify the Andalusian absolute interrogatives with a rising final contour as an interrogative.

5.1.3 RQ3. Do Andalusians and Puerto Ricans distinguish between general absolute and counter-expectational interrogatives that have different tonal contours?

This question was explored in both tasks. The congruity matching task showed that the Andalusian contours were generally heard or associated with the intended meanings and dialectal patterns correctly by both dialectal listeners as declaratives or interrogatives, but there was fuzziness or overlap in the percept of emphasis.[5] The Puerto Rican listeners were able to associate both interrogative types for both dialects; however, the Andalusian listeners were only able to appropriately associate the contra-expectation contour of their own dialect and completely misinterpreted the Puerto Rican contours as declarative with varying degrees of confidence.

5.2 Discussion: Cross-dialectal Confusion Evidence for Intonational Phonology

Listener responses indicate that particular final tonal sequences can be interpreted with different meanings (declarative versus interrogative) across the two dialects. The Puerto Rican counter-expectational contour with a nuclear rise and a boundary fall was heard primarily as a declarative by Andalusians in both tasks. The contrastive interpretation of the Puerto Rican contours provides evidence and indicates that the final contours are phonological–they contribute to contrastive meanings.

The title of this paper reflects an anecdotal experience that listeners of dialects without a Final Falling Tonal Contour are unsure of the speakers' intentions. The variability in the responses and the placement of the evaluations on the visual analog scale reflects this lack of contrastiveness that is expected in a minimal pair with semantics that are clearly phonological. Another possibility for the variable perception of interrogatives by the Andalusians may lie in the initial tonal behaviors. It has been argued that interrogatives have higher initial pitch accent values, which may serve as additional tonal cues to interrogativity (Face 2008, Willis 2006/7).

6 Conclusion

This study investigates intonational characterizations of Andalusians and Puerto Ricans, exploring their association with utterance types, interpretation of variable final rises or falls, and distinction between general absolute and counter-expectational interrogatives. Findings show that Andalusian listeners generally associate intonational patterns with different semantic meanings, while Puerto Rican listeners consistently associate reported contour patterns, albeit with considerable category permeability. In the Visual Analog Scale Slider task, Andalusian listeners were less confident in their evaluation of final falling contours, while Puerto Rican listeners correctly identified rising final contours as interrogative. Both listener groups correctly identified dialectal patterns for declaratives and interrogatives, but with fuzziness in the percept of emphasis.

Cross-dialectal confusion in intonational phonology was observed, with Andalusians primarily hearing Puerto Rican counter-expectational contour as a declarative. The contrastive interpretation of Puerto Rican contours highlights the phonological nature of the final contours. The variability in responses suggests a lack of contrastiveness in certain tonal contours. Furthermore, higher initial pitch accent values in interrogatives might serve as additional tonal cues for interrogativity, influencing the perception of the Andalusian listeners.

References

Allan, Scott. 1990. The rise of New Zealand Intonation. In *New Zealand Ways of Speaking English*, ed. A. Bell and J. Holmes, 115-128. Philadelphia: Multilingual Matters.

Armstrong, E. Meghan. 2010. Puerto Rican Spanish intonation. In *Transcription of Intonation of the Spanish Language*, ed. P. Prieto and P. Roseano, 155-189. Munich: Lincom EUROPA.

Britain, David. 1992. Linguistic change in intonation: The use of high rise terminals in New Zealand English. Language Variation and Change 4:77-104

[5] We are aware of a large literature on contrastive focus in Spanish but due to limited space it is beyond the scope of our analysis. We chose to use the generic term emphasis that a naïve listener/participant could recognize to preliminarily differentiate between the utterance types.

Britain, David, and John Newman. 1992. High rising terminals in New Zealand English. *Journal of the International Phonetic Association* 22:1-11.

Cabrera Abreu, Mercedes, and Francisco Vizcaíno Ortega. 2010. Canarian Spanish Intonation. In *Transcription of intonation of the Spanish language*, ed. P. Prieto and P. Roseano, 87-121. Munich: Lincom EUROPA.

Ching, K. L. Marvin. 1982. The question intonation in assertions. *American Speech* 57:95-107.

Congosto Martín, Y. 2011. Contínuum entonativo: declarativas e interrogativas absolutas en cuatro variedades del español peninsular y americano. *Revista internacional de lingüística iberoamericana*, 75-90.

Estebas-Vilaplanas, Eva, and Pilar Prieto. 2010. Castilian Spanish Intonation. In *Transcription of Intonation of the Spanish Language*, ed. P. Prieto and P. Roseano, 17-47. Munich: Lincom EUROPA.

Face, T. L. 2008. *The intonation of Castilian Spanish declaratives and absolute interrogatives.* Munich, Lincom Europa GmbH.

Guy, Gregory, Barbara Horvath, Julia Vonwiller, Elaine Daisley, and Inge Rogers. 1982. An intonational change in Australian English. *Language in Society* 15:23-51.

Henriksen, C. Nicholas, and Lorenzo J. García Amaya. 2012. Transcription of jerezano andalusian Spanish. *Estudios de fonética experimental* 21:109-162.

Kim, Ji Young. 2023Spanish-English cross-linguistic influence on heritage bilingual' production of uptalk. *Languages* 8:1-25.

Kim, Ji Young, and Gemma Repiso Puigdelliura. 2021. Keeping a critical eye on majority language influence: The case of uptalk in heritage Spanish. *Languages* 6:1-27.

Meyerhoff, Miriam. 1998. Accommodating your data: The use and misuse of Accommodation Theory in sociolinguistics. *Language and Communication* 18:205-225.

Prieto, Pilar, and Paolo Roseano, eds. 2010. *Transcription of Intonation of the Spanish Language*. Munich: Lincom Europa.

Sosa, Juan Manuel. 1999. *La entonación del español: Su estructura fónica, variabilidad y dialectología*. Madrid: Cátedra.

Warren, Paul. 2016. *Uptalk: The phenomenon of rising intonation*. Cambridge: Cambridge University Press.

Warren, Paul, and Nicola Daly. 2000. Characterising New Zealang English intonation –Broad and narrow análisis. In *Languages of New Zealand*, ed. A. Bell, R. Harlow, and D. Starks, 217-237. Wellington. Victoria University Press.

Willis, W. Erik. 2006. Tonal prominence relations in Dominican Spanish declaratives and interrogatives. *Journal of Portuguese Linguistics* 5/6:179-202.

Willis, W. Erik. 2010. Dominican Spanish Intonation. In *Transcription of Intonation of the Spanish Language*, ed. P. Prieto, and Paolo Roseano, 123-153. Lincom EUROPA.

Zwartz, Joel, and Paul Warren. 2003. This is a statement? Lateness of rise as a factor in listener interpretation of HRTS. *Wellington Working Papers* 15:51-62.

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