

# LANGUAGE ATTITUDES OF CATALAN-SPANISH BILINGUALS TOWARDS INTERVOCALIC ALVEOLAR FRICATIVES IN CATALAN

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## ABSTRACT

Catalan and Spanish are two languages that have co-existed for centuries in Eastern Spain. Thus, there is a bidirectional influence between these languages in all linguistic levels, including in the production of sounds. However, little is known about the perception and the attitudes toward a less Catalan-like production of a given sound. Therefore, the aim of this study is to examine the covert attitudes toward the production of intervocalic /s/, as either [s] or [z] by Catalan-Spanish bilinguals from Catalonia using a matched guise test. Results indicate that phoneme type is not a significant predictor of language attitudes in Catalonia, but other individual social factors, such as mother tongue and province, might be.

**Keywords:** Catalan, Spanish, language attitudes, intervocalic alveolar fricatives.

## 1. INTRODUCTION

Catalan and Spanish are two languages that have co-existed for centuries, mainly in eastern Spain, along the Mediterranean coast [1]. It is safe to assume that there is a bidirectional influence between these languages: in that region, Catalan has influenced Spanish and Spanish has influenced Catalan in all linguistic levels [2] [3]. A crucial area of cross-linguistic influence might be the production of sounds, especially in those sounds that have different distribution in Catalan and Spanish. For example, previous studies have found that, in Barcelona, the production of Catalan vowels is different based on the L1 of the speaker, being it less target-like in L1 Spanish speakers compared to L1 Catalan speakers [4].

However, little is known about the perception and the attitudes toward a less Catalan-like production of a given sound. Therefore, the aim of this study is to examine the covert attitudes towards the production of intervocalic /s/, as either [s] (disfavored by prescriptivist norms) or [z] (preferred by prescriptivist norms) by L1 Catalan, L1 Spanish, and Catalan-Spanish bilinguals from Catalonia using a matched

guise test [5]. The alveolar fricative was chosen because it exists in both Catalan and Spanish inventories, but their contextual distribution is different [6].

## 2. BACKGROUND LITERATURE

### 2.1. The production of the alveolar fricative in Catalan and Spanish

Both Catalan and Peninsular Spanish sound inventories have a phoneme /s/, which can be classified as a voiceless alveolar fricative [7]. In addition, most of the Catalan varieties have a voiced alveolar phoneme in intervocalic contexts [8] [9]. In onset position, /s/ and /z/ contrast phonemically, which leads to minimal pairs like *cel* [sɛl] - *zel* [zɛl] and *fossa* [fósa] - *fosa* [fóza] [10]. Conversely, at the end of the word, this contrast is neutralized, being the voicing or devoicing of the alveolar fricative dependent on the following sound [11]. For example, if it is followed by a vowel, the alveolar fricative is voiced: *torres* [tóɾəs] and *torres antigues* [tóɾəsəntiɣəs].

While Spanish inventory does not have the phoneme /z/, the sound [z] may occur as an allophone of /s/, due to a voice assimilation process. It is important to mention, though, that it has been claimed that this voicing is generally not complete, but partial [12] [7] [13]. There is some evidence of the influence of Spanish on the production of the Catalan alveolar fricative, in contexts where, according to prescriptivist rules [11], the [z] should be produced, but [s] is produced instead. This phenomenon has mainly been attested in those areas where there has been an extended contact between Catalan and Spanish, such as the so-called “franja de Aragón” (borderland between Catalonia and Aragon), some areas of the Valencian Community, and Barcelona and other urban areas [12] [9] [14]. The opposite pattern has also been observed - that is, the voicing of the alveolar fricative in the Spanish spoken in Barcelona and Valencia. Interestingly, although in both Barcelona and Valencia Catalan and Spanish coexist and influence each other, it

seems that Catalan has a greater influence on Spanish in Barcelona, but Spanish has a greater influence on Catalan in Valencia [14].

## 2.2. Language attitudes towards the alveolar fricative in Catalan and Spanish

The social meaning and the perception of intervocalic [z] in Spanish has been studied in a variety of contexts, including both monolingual [15] [16] [17] [18] [19] [20] [21] and bilingual contexts [2] [3] [22] [23], despite having been categorized as a low-salient variant [15] [16] [19]. With respect to the former, it has been found that for listeners from Costa Rica and Ecuador [17], the covert attitudes associated with intervocalic [z] vary significantly by speaker gender. Consequently, male speakers who use [z] tend to be positively evaluated, and generally perceived as nice, local, confident, and masculine. Conversely, female speakers who use [z] are only afforded negative associations of lower education and social class [15] [18] [21]. Additionally, this variable has been found to serve as a marker of regional identity, with voicing being associated with neighboring Highland Ecuadorian dialects that exhibit systematic voicing.

With respect to the social meaning and the perception of intervocalic [z] in bilingual contexts, this phenomenon has been mainly studied in Catalan-Spanish contact situations [2] [3]. According to Sinner [23], intervocalic [z] can be considered a possible linguistic marker of Catalanian Spanish, despite its relative lack of social awareness [22] [23]. Additionally, Davidson (2019) found that, in Barcelona, the indexical field of intervocalic [z] features exclusively positive associations with bilingualism and local solidarity, which warrants its gradual adoption in the speech community, unlike other phonetic markers of Catalanian Spanish that are the topic of overt social ridicule, such as lateral velarization. These results are in line with previous findings on intervocalic [z] in Catalanian Spanish. For instance, Silverstein [21] found that intervocalic [z] indexes a local Barcelona identity, and the variant then acquires positive associations with bilingualism and cultural pride. Overall, these findings suggest that intervocalic [z] likely functions as a sociolinguistic indicator of Catalanian Spanish within the Catalanian speech community, indexing Catalan-Spanish bilingual membership while lacking any considerable degree of generalized conscious awareness [22].

## 2.3. The present study

Accordingly, and considering that there are no perception studies focusing on Catalanian Catalan (central variety), the present study aims to answer the following research questions:

1. What covert attitudes are linked to the perception Catalan intervocalic /s/ as either [s] or [z]?
2. What is the relationship between individual social factors and covert attitudes towards Catalan intervocalic /s/?

## 3. METHODS

### 3.1. Materials

Data were collected using an online survey hosted on Qualtrics that consisted of two parts. The first part, a demographic questionnaire, collected information regarding participant age, gender, place of origin, place of residence, mother tongue, family income, and level of studies. The second portion of the survey consisted of a perception task where participants were presented with a series of stimuli containing the target phoneme contrast (intervocalic voiced and voiceless alveolar fricative) such as *Han tancat les vies estretes* ‘they closed the narrow streets’, followed by 11 evaluative statements related to social characteristics such as level of studies, friendliness, social class, and ethnic origin. These evaluative statements were then followed by a 100-point draggable sliding scale with which participants indicated their level of agreement or disagreement with the content of the statement, where 0 was “totally disagree” and 100 was “totally agree”.

The target stimuli were recorded by a 28-year-old female native speaker of Catalan in a whisper room 6084 E sound booth using a personal communication device. The stimuli were between 3 and 4 seconds long and were controlled for utterance length (5 words), syllable count (2 syllables for the target word and 3 for the following adjective), and lexical stress (target sound in unstressed position). A total of 12 target stimuli containing intervocalic voiced /s/ were recorded, as well as different samples of the voiceless /s/. The target sentences were manipulated in Praat by splicing the voiced /s/ and pasting the voiceless /s/ in order to create 2 conditions: 12 stimuli containing intervocalic voiced /s/ and 12 stimuli containing intervocalic voiceless /s/, for a total of 24 experimental sentences. These sentences were combined with 32 fillers targeting other phonemic contrasts, for a total of 56 sentences randomly distributed in two different versions. Each included 12 experimental stimuli (6 x 2 conditions) and 16 fillers

(8 x 2 conditions).

### 3.2. Procedure

Participants self-identified for this study. These were the requirements: to be over 18 years of age, to be from Catalonia, and to be proficient in both Catalan and Spanish. The survey was shared using social networks and online communication channels and it followed a between-subjects design. Therefore, participants were randomly assigned to one of the two versions.

### 3.3. Participants

A total of 78 responses to the questionnaire were collected. Of these, 56 responses were incomplete and were therefore discarded. Data are drawn from a total of 22 participants (13 females) aged between 18 and 72 years old (mean = 38) from Barcelona and Girona.

### 3.4. Data analysis

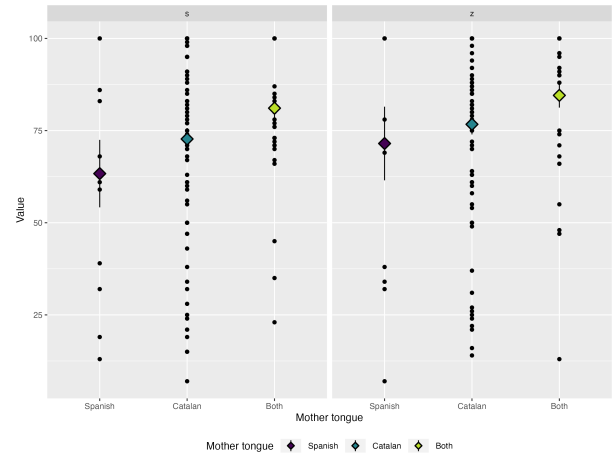
Data were analyzed in R (R Core Team, 2023). For each of the 11 evaluative statements, we created a series of hierarchically nested linear regression models using the lme4 package (Bates et al., 2015) with attitudinal sliding scale responses as the dependent variable, and phoneme, mother tongue, and province as potential predictors. To determine the best fit model for each statement, we used the anova() function (Fox & Weisberg, 2019).

## 4. RESULTS

The statistical analysis did not reveal a significant effect of phoneme on the evaluation of the speaker ( $p > .05$ ) for any of the 11 evaluative statements. However, the model output did show a significant association between mother tongue and province for some of the statements. In what follows, we will explore the results for those statements.

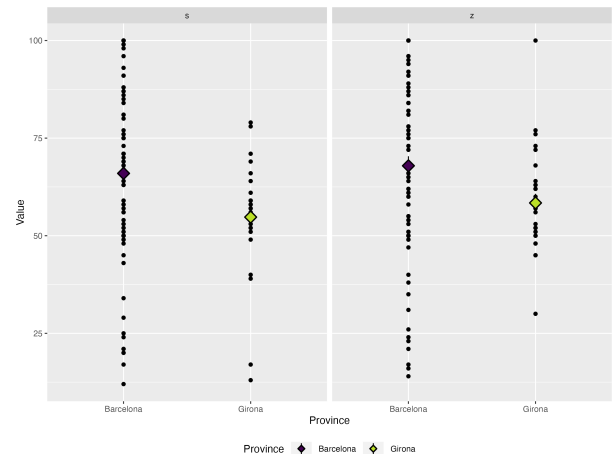
Participant responses to the statements *Parla bé català* 'S/he speaks proper Catalan' and *És d'origen català* 'S/he is of Catalan origin' show similar results, as illustrated in Figure 1. Those who have both Catalan and Spanish as their L1 rate the speaker more positively regardless of phoneme, compared to those whose L1 is either Catalan or Spanish. In addition, although it is not statistically significant, participants give higher ratings to the speaker when they are listening to those statements with [z].

Participant responses to the statements *És simpàtic* 'S/he is nice' and *És de fiar* 'S/he is trustwor-



**Figure 1:** Ratings of "És d'origen català" as a function of mother tongue

thy' showed similar results, as illustrated in Figures 2. Those who are from and live in the province of Barcelona give higher ratings to the speaker, compared to those who are from and live in Girona.



**Figure 2:** Ratings of "És de fiar" as a function of mother tongue

## 5. DISCUSSION

The aim of this exploratory study was to explore the covert attitudes that are linked to the perception of Catalan intervocalic /s/ as either [s] or [z] and to examine the relationship between individual social factors and covert attitudes towards Catalan intervocalic /s/. The results suggest that these predictors have a different effect on the ratings of the speaker depending on the social characteristic under evalua-

tion.

Contrary to what we expected, phoneme was not a significant predictor. One explanation for this divergent pattern could be that either participants could not distinguish between [s] and [z] [22] or, if they could, this difference in production was not changing their attitudes towards the speaker [23]. This finding is interesting considering that the production of the voiceless alveolar fricative in intervocalic position has been considered a result of Catalan in contact with Spanish [12] [9] [14], and, from a prescriptivist point of view, it should be avoided [11]. Despite the lack of significance of this predictor, it should be mentioned that the speaker received more positive ratings when the [z] was being produced. The fact that phoneme was not an important factor contrasts with Davidson [14], who analyzed covert and overt attitudes towards Catalanian Spanish and found that [z] was a significant predictor: it was considered a sociolinguistic indicator of Catalan-Spanish bilingual membership. Although at this point we can only hypothesize, it could be that [z] is perceptually more salient in Spanish than in Catalan, as the Spanish inventory does not have the phoneme /z/, but voicing of /s/ might partially occur [12] [7] [13]. Another explanation could be that the /s/ alone does not provide enough social information; rather, the combination of the phoneme /s/ with the precedent vowel might give the listener more cues and have a stronger social meaning. Future studies should address this issue in order to explore if the combination of vowel + /s/ carries other social connotations than just the /s/ alone.

We expected mother tongue to be a strong predictor of the attitudes towards the production of intervocalic /s/, specifically, that L1 Catalan and bilingual speakers would give higher rates to those statements with [z]. This hypothesis was only partially confirmed. As reported above, phoneme was not a factor influencing the attitudes, and mother tongue was only a significant predictor in the two statements related to Catalan identity, namely *Parla bé català* ‘S/he speaks proper Catalan’ and *És d’origen català* ‘S/he is of Catalan origin’. Interestingly, bilinguals gave higher ratings to the speaker, followed by L1 Catalan participants and L1 Spanish participants. A potential explanation for this finding, that should be verified in future research, could be that L1 Catalan speakers have specific ideas (higher standards) towards the ‘proper’ Catalan. In addition, some studies have suggested that those Catalan people who grow up in Spanish-speaking households typically exhibit more negative attitudes towards Catalan [24], which is consistent with our results.

Lastly, province was also found as an important predictor, but only for some statements. In two of the solidarity statements (*És simpàtic* ‘S/he is nice’; *És de fiar* ‘S/he is trustworthy’), the speaker was rated more positively by those participants from the province of Barcelona. This finding might suggest that they identify with the speaker; thus, giving her higher ratings [25] [26]. Interestingly, the speaker that created the stimuli is from the province of Girona, but has spent the last 11 years of her life living outside that area, either in Barcelona or in another country. We asked her to read the sentences using a Central Catalan ‘neutral accent’, which people might have potentially related with Barcelona. This ‘neutral accent’ does not show any of the prototypical characteristics of the *accent gironí*, a subvariety within Central Catalan spoken in some areas of Girona [27].

## 6. CONCLUSION

In summary, our findings suggest that the relationship between covert attitudes and speaker ratings is not straightforward, as the speaker was evaluated differently based on the social characteristic, with varying factors influencing such ratings (mother tongue and province). Crucially, phoneme production did not have an effect on the ratings, even though prescriptivist norms disfavor the realization of [s] in intervocalic position. Future studies should include a larger participant pool, as well as participants from other regions in Catalonia, such as Lleida and Tarragona. In addition, examining other phoneme productions that emerge through the contact of Catalan with Spanish could give us a better understanding of the factors that affect the attitudes towards the Catalan language, and potential sociolinguistic stereotypes and indicators related to Catalan identity.

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