The merger of Majorcan Catalan /ʎ/ and /ʒ/

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March 11, 2013

Introduction

All dialects of Catalan display a phonemic contrast between /ʎ/ and /ʒ/, as evidenced by the minimal pair *lloc* [ʎɔk] 'place' and *joc* [ʒɔk] 'game'. Majorcan Catalan, a conservative insular variety, differs from other Catalan dialects, such as Central Catalan (the mainland dialect upon which the standard is based), in that it also has /j/. Central Catalan /ʎ/ corresponds to Majorcan Catalan /ʎ/ and /j/ ([e̯] between vowels); the fricative (/ʒ/) tends to correspond to the Majorcan Catalan fricative. Majorcan Catalan /j/ resulted from regular sound change affecting Latin C'L, G'L, T'L and LY, and it is also found in (non-standard) dialects of the mainland (cf. de Borja Moll, 1952, 2006; Wheeler, 2005). Thus, where Majorcan Catalan has /j/, /ʎ/ and /ʒ/ (*poll* [poj] {< peduc'lu} 'louse' vs. *poll* [poʎ] {< pullu} 'chick' ; *jaç* [ʒas] 'bed' {< iaceo} vs. *llaç* [ʎas] 'knot' {< laceu}), Central Catalan and other dialects have /ʎ/ and /ʒ/. (See Table 1.) The Catalan linguistic tradition refers to this difference between Majorcan and Central Catalan as traditional *ieisme* or *iodització*.[1]

The term "traditional" in *traditional 'ieisme'* is used in opposition to a type of *ieisme* that is, apparently, of recent *genesis*: the delateralization of /ʎ/ (ʎ → j) in environments that do not derive from Latin C'L, G'L, T'L and LY. The phenomenon of the delateralization of /ʎ/ has been reported for several mainland Catalan dialects, including those that do not have traditional *ieisme* (Segura 2003, for Southern Valencian; Recasens 1991, for Eastern Central Catalan). For instance, Segura (2003) provides the percentages in Table 2 for the pronunciation of the variable (ʎ) (variants [ʎ] and [j]) in the word *cavall* 'horse' as a function of the age of his informants, all recruited in the Baix Vinalopó, in the province of Alacant (Valencian Country). This dialect does not have traditional *ieisme*, and thus does not display the /ʎ/-/j/ contrast—/j/ is a "new"

[1] The Dictionary of the Institut d'Estudis Catalans (DIEC) defines the term *ieisme* [jə.ˈis.mə] as follows: "*Fenomen propi del català oriental, viu a les Balears i a les comarques nord-orientals i centrals fins al nord del Barcelonès, consistent a pronunciar i el resultat de l'evolució dels grups C'L, G'L, T'L i LY del llatí vulgar.*" (Phenomenon of Eastern Catalan, alive on the Balearic Islands and in the north-eastern and central counties to the north of the Barcelonès, which consists of pronouncing as i the resulting sound of the evolution of C'L, G'L, T'L and LY of Vulgar Latin.)

Spelling	*Central Catalan*	*Majorcan Catalan*	*Translation*
lluna	ʎ	ʎ	'moon'
cavall	ʎ	ʎ	'horse'
allà	ʎ	ʎ	'there'
ull	ʎ	j	'eye'
fulla	ʎ	j (e͡)	'leaf'
cella	ʎ	j (e͡)	'eyebrow'
ajaguda	ʒ	ʒ	'lying down'
gent	ʒ	ʒ	'people'
major	ʒ	ʒ	'greater'

Table 1: Cross-dialectal correspondences between Central Catalan /ʎ/ and /ʒ/ and Majorcan Catalan /j/, /ʎ/ and /ʒ/.

(ʎ)	60+	37-60	18-36	9-17
[ʎ]	84%	26%	18%	2%
[j]	16%	74%	82%	98%

Table 2: Percentages of *ieisme* (/ʎ/ → [j]) for the word *cavall* 'horse' as a function of age in the Baix Vinalopó, Alacant province (adapted from Segura 2003).

sound in this dialect. According to our own anecdotal observations, this phenomenon (i.e., the delateralization of /ʎ/) is also very common on Majorca, but we lack variationist data from this dialect. Notice that Majorcan Catalan does present traditional *ieisme*, which means that it has the /ʎ/-/j/ contrast—/j/ is not a "new" sound in this dialect. In Majorcan Catalan, the delateralization of /ʎ/ could be conceived of as the extension of [j] to the lexical set of /ʎ/.

Non-traditional *ieisme* is socially stigmatized, at least to some extent. For instance, the Dictionary of the Institut d'Estudis Catalans refers to it as a "speech defect."[2] Also, while the phenomenon is certainly present in the media, in Majorca, there have been some reactions to this.[3]

A second, related, phonological phenomenon that is sometimes also noticed by language commentators is the loss of the fricative component of /ʒ/, resulting in a central palatal approximant: ʒ → j. To the extent that both /ʎ/ and /ʒ/

[2] DIEC: "*Defecte consistent en la pronúncia sistemàtica de i en comptes de ll.*" (Speech defect that consists of systematically pronouncing i instead of ll.)

[3] *"D'uns anys ençà, he estat testimoni que, a les meves classes, he passat de tenir vuit o nou alumnes ieistes -és a dir, aquells que no destrien el so de la 'll' del so de la 'i'- a tenir-ne vuit o nou que no són ieistes."* (In the last few years I went from having eight or nine *ieista* students –those that do not make a distinction between the sound of 'll' and the sound of 'i' to having eight or nine that are not.) This was the comment to a Catalan-language newspaper of a college professor, Antònia Puigròs, who teaches oral elocution to journalism students at the CESAG, Majorca. She then went on to say that *ieisme* is "inadmissible" in professional news broadcasters (Diari de Balears, "*Una 'l' bleda és inadmissible als mitjans audiovisuals seriosos.*" December 29, 2007.)

are implemented as [j], we could speak of a merger of /ʎ/ and /ʒ/ in Majorcan Catalan. Our own informal observations attest to the existence of this merger in the speech of some (many?) younger Majorcan speakers. The neutralization of this contrast is the result of pronouncing /ʎ/- and /ʒ/-words with [j], and it thus represents a possible extension of /j/ to the lexical sets of /ʎ/ and /ʒ/. To our knowledge, the loss of frication of /ʒ/ and its subsequent neutralization with /ʎ/ has remained unreported, and thus unstudied, in the specialized literature until now. At any rate, even the delateralization of /ʎ/, which has been reported and somewhat studied, "has not been the object of any systematic investigation" (Wheeler, 2005: 35).

The present study is the first step towards addressing the process affecting these palatal and post-alveolar sounds in Majorcan Catalan. We aim to address the 'actuation problem' of this change. We ask: What is the etiology of this sound innovation? Two explanations come to mind: First, internal evolution and, secondly, contact-induced sound change.

Internal evolution becomes a candidate when we take into account the following facts. (1) A phonetically-conditioned process of delateralization (ʎ → j) must have already taken place in Majorcan Catalan in the distant past (*traditional ieisme*; see Table 1); thus, an extension of [j] to the realm of /ʎ/ is not unattested. (2) Independent processes of delateralization have also occurred in the history of many other Romance languages, such as Spanish, French and Occitan, leading to the loss of /ʎ/ in these languages (Wheeler 2005: 35). (To be fair, some dialects of Spanish, both in the Old and the New World retain the lateral pronunciation of /ʎ/, but these are in the minority. The lateral pronunciation of /ʎ/ is not part of the standard anymore.)

On the other hand, most scholars believe that the current process of Catalan delateralization is due to intensive contact with Spanish (Segura, 2003; Wheeler 2005: 35). This view, which is rather common in both specialized and popular circles, is probably the reason why this process is, to some extent, stigmatized. Catalan exists in an intensive and extensive contact with Spanish. There are no monolingual speakers of Catalan; all native Catalan speakers are highly fluent Catalan-Spanish bilinguals. Spanish does not have /ʒ/, and most dialects do not have /ʎ/ either; however, it does have /ʝ/, which is closely similar (though not identical) to Majorcan Catalan /j/. While some conservative dialects of Spanish contrast /ʎ/ and /ʝ/ (*haya* ['a.ʎa] 'there is, subjunctive' vs. *halla* ['a.ʝa] 's/he finds'), most show evidence of having undergone a merger of the two phonemes in favor of /ʝ/ (see Table 3). In the Spanish linguistic tradition, the merger of these two sounds is known as *yeísmo* while the realization of the contrast is known as *lleísmo*. Since the Spanish varieties that are in contact with Catalan on Majorca lack the /ʎ/-/ʝ/ contrast (and also /ʒ/), one could hypothesize that the merger of Majorcan Catalan /ʎ/, /ʒ/ and /j/ comes from the inter-lingual assimilation of /ʎ/, /ʒ/ and /j/ to Spanish /ʝ/ by Spanish-Catalan bilinguals. If this were the case, one would hypothesize that Spanish-dominant Catalan-Spanish bilinguals would be the *leaders* of this possible "change in progress." If the change would be motivated by internal, phonological evolution, there is *a priori* no reason to expect Spanish-dominant bilinguals to lead.

Spelling	Spanish *lleísta*	Spanish *yeísta*	Translation
halla	ʎ	ʝ	'he finds'
pollo	ʎ	ʝ	'chicken'
llena	ʎ	ʝ	'full, femenine'
haya	ʝ	ʝ	'there is, subjunctive'
poyo	ʝ	ʝ	'stone bench; ledge'
hiena	ʝ	ʝ	'hyena

Table 3: Conservative (*lleísta*) and innovative (*yeísta*) Spanish dialects with respect to realization of the /ʎ/-/ʝ/ contrast.

Van Coetsem (2000) and Winford (2003) have put forward a model of contact-induced linguistic change according to which the type of structural changes attested are explained through the agency of the innovators. For instance, when native speakers of a recipient language borrow some feature from a source language (recipient-language agentivity), structural changes are expected to be shallow and most would involve vocabulary. On the other hand, when native speakers of a source language use some features of their native language into their second langueg (source-language agentivity), the structural changes "received" by the language may be deep and extensive—the result of first-language interference. Is source-language agentivity the cause of the changes involving the palatal and post-alveolar consonants of Majorcan Catalan?

Sebastián-Gallés and colleagues have shown how Spanish-dominant Catalan-Spanish bilinguals experience 'difficulties' when perceiving and producing some Catalan-specific contrasts, such as /s/-/z/, /e/-/ɛ/, /o/-/ɔ/ (Sebastián-Gallés & Soto-Faraco, 1999; among many others). For Majorca, Simonet (2010, 2011) has shown that the Catalan-specific /o/-/ɔ/ contrast is merged in the pronunciation of Spanish-dominant bilinguals, and that these speakers do not pronounce the Catalan velarized /l/ with a "dark" quality, pronouncing it like in Spanish ("light"). Sebastián-Gallés & Soto-Faraco (1999) hypothesize that the 'difficulties' with Catalan phonology faced by Spanish-dominant bilinguals, possibly due to cognitive limitations associated with brain maturation during early infancy, might also affect the production of Catalan /ʎ/ and /ʒ/. They reasoned that, since Catalan possesses this contrast and Spanish does not, Spanish-dominant bilinguals will be challenged by this fact in their production, perception and processing of Catalan sounds. They did not, however, investigate this specific contrast. The present study focuses on the /ʎ/-/ʒ/ contrast, occurring in all dialects of Catalan, and ignores the contrast between /ʎ/ and /j/, attested only in some dialects. Our main working hypothesis is as follows: If the merger of Majorcan Catalan /ʎ/ and /ʒ/ originates, in its inception, from L1 → L2 transfer of a Spanish pronunciation pattern, Spanish-oriented bilinguals should display neutralization to a greater extent than Catalan-oriented bilinguals.

Method

The present study analyses the phonetic skills of 20 Catalan-Spanish bilinguals, 10 males. The recruited bilinguals were assigned to two groups (10 Catalan-oriented [5 males], 10 Spanish-oriented [5 males]) with the help of a language background questionnaire (Birdsong et al., 2012). The questionnaire enquired about language history, usage, attitudes and abilities. It calculates a cumulative score for each language of a bilingual. Finally, it provides a dominance index, which is the result of subtracting one language score from the score of the other language. The dominance index may be negative, reflecting dominance in one language (Catalan, in our case), or positive, reflecting dominance in the other (Spanish, in our case). The subjects participated in two tasks, a production and a perception task.

The processing of palatals was assessed by means of a production task in which speakers were asked to shadow speech samples containing /ʎ/- and /ʒ/-words recorded by 6 different talkers (3 males). The 6 talkers were Catalan-dominant subjects who produce the /ʎ/-/j/-/ʒ/ contrast in their own speech. In these materials, both phonemes had been pronounced in its merged and non-merged form. That is, /ʎ/ was pronounced as [ʎ] and as [ʝ] by the 6 talkers; /ʒ/ was also pronounced as [ʒ] and as [ʝ] by the talkers. First, the talkers were asked to read aloud the experimental items; no further instructions were given to them. Then they were asked to pronounce them with [j], "as if a Spanish speaker were pronouncing these words." The talkers had no apparent problems following these instructions—when no instructions were given, they pronounced /ʎ/ as [ʎ] and /ʒ/ as [ʒ]; when they were asked to pronounce the words with [j], they did. (This was assessed by the two authors, themselves native speakers of Majorcan Catalan.) Therefore, the 20 participants listened to "canonical" ([ʎ], [ʒ]) and "non-canonical" ([j]) forms of all experimental items as produced by a range of talkers. Experimental items were placed in meaningful short sentences; care was taken to balance the adjacent phonetic context of the target sounds. They were asked to listen and then repeat out loud the materials without making an effort to imitate the pronunciation of the talkers. The participants heard (and then produced) each experimental item a total of 12 times, twice by each talker. The recordings were made in a quiet classroom at the Universitat de les Illes Balears, Majorca. The equipment we used was as follows: a Shure SM10A dynamic head-mounted microphone, a Sound Devices MM-1 microphone pre-amplifier, and a Marantz PMD660 digital speech recorder. The signal was digitized at 44.1 kHz, 16-bit. Production was assessed by means of two acoustic correlates: the center of gravity of a 40 ms spectrum centered on the consonantal midpoint, and the skewness of the spectrum.

The perceptual abilities of the participants were assessed with a discrimination task (AXB) with the following pairings: [ʎ]-[ʒ], [ʎ]-[j], and [ʒ]-[j]. Thus, we investigated the discriminability of the Catalan /ʎ/-/ʒ/ contrast as well as that of the "canonical" and "non-canonical" realizations of each phoneme. The 6 talkers who produced the auditory materials for the production study read out loud the minimal pair *dóna joc* ['do.nə.'ʒɔk] 'play a part, provide scope' vs. *dóna*

lloc [ˈdo.nə.ˈʎɔk] ‘give rise to, lead to’. Then they were asked to produce this sequence with [ʝ] > [ˈdo.nə.ˈjɔk]. The AXB task used these sequences, instead of the consonants in isolated form. In this way, sounds are heard and processed in context, and categorical discrimination (rather than acoustic discrimination) is assessed. The instructions of this task asked the 20 participants to select the sentence that “differed in its pronunciation” from the other two. (Notice this is not a matching task, but an odd-one-out task.) The participants used a numeric keyboard, in which the “1” key was pressed to indicate that the odd stimulus in the trial was the first one in the triad, and the “3” key indicated that the odd stimulus was the third one. In each triad, only stimuli from three different talkers were used. Triads consisted of all-male or all-females voices. The discriminability of contrasts was assessed by calculating the proportion of participants’ correct responses to a given condition.

Results and Conclusion

The results of both tasks show systematic differences between Catalan- and Spanish-oriented bilinguals. The Catalan-oriented participants did not merge /ʎ/ and /ʒ/ as [ʝ], while the Spanish-oriented speakers did. (See Figure 1.) The Catalan-dominant participants discriminated the pairings [ʎ]-[ʒ] and [ʒ]-[ʝ], but their discrimination of the /ʎ/-/j/ was not robust; in other words, they discriminated the fricative from the other two sounds, but not the lateral from the central palatal approximant. The Spanish-oriented participants did not discriminate any of these pairings in any robust manner. (See Figure 2.) Together, these results suggest that the merger of /ʎ/ and /ʒ/ in Majorcan Catalan originates from a process of inter-lingual transfer (L1 → L2 transfer or “source language agentivity” [van Coetsem, 2000; Winford, 2003]) rather than from borrowing or, importantly, from an internal extension of Majorcan Catalan /j/ to the lexical set of /ʎ/ and /ʒ/. Whether this pattern of Spanish-oriented bilinguals will be borrowed by Catalan-oriented speakers or not will need to be seen in the future. This study cannot rule out, however, that an additional process of delateralization of [ʎ] (ʎ → j), one *not* leading to a merger between /ʎ/ and /ʒ/, is due to internal phonological evolution. This process could affect Catalan-dominant speakers without having to be due to contact with Spanish—this is what we mean by “internal”. This is perhaps the process, one that we see in the perception experiment reported here, that affected French, Occitan and Spanish.

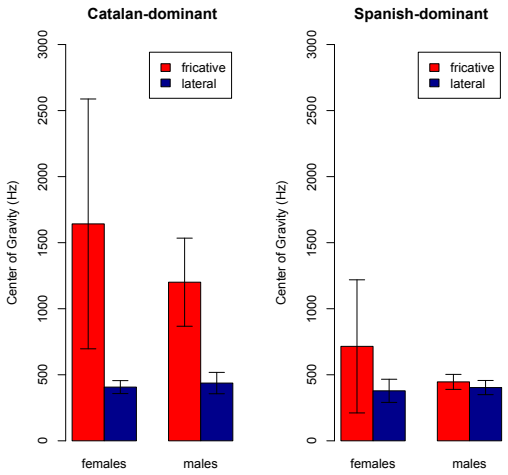

Figure 1: Center of gravity of a 40 ms spectrum calculated at the consonantal midpoint. Data are plotted as a function of the speaker group (Catalan-oriented, Spanish-oriented) and the gender of the speaker (female, male).

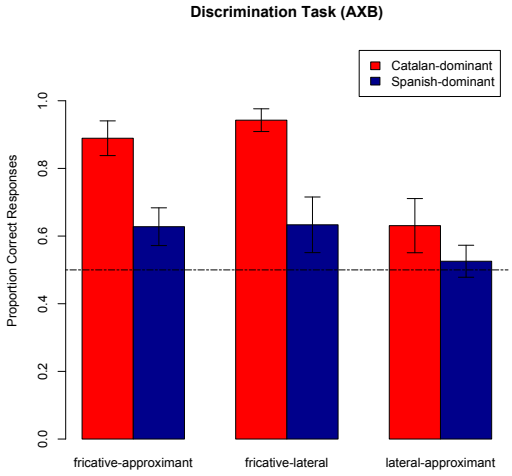

Figure 2: Proportion of correct responses in an AXB task with pairings [ʎ]-[ʒ], [ʎ]-[j], and [ʒ]-[j] plotted as a function of the speaker group (Catalan-oriented, Spanish-oriented).