Variable /s/ weakening in Canary Islands Spanish – a sociophonetic corpus study

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The so-called /s/ aspiration is perhaps the most well-known process pertaining to Spanish phonology. Despite its name, however, the phenomenon includes not only aspiration (debuccalisation) of /s/ to [h] but also other forms of weakening, such as voicing or deletion. It is also sensitive to many language-internal and external factors [1-3]. The aim of this study is to take a comprehensive look at one dialect of Spanish and explore the interplay between phonetic/phonological, social and functional factors influencing the distribution of surface variants. In Canary Islands Spanish (CIS), /s/ has four different surface realisations: [s h ɦ Ø] (see examples in Fig. 1). First, although weakening is prevalent, it is unclear what determines the rates of aspiration vs. deletion or voiced vs. voiceless aspiration [4]. This may be dependent on the following sound and/or prosodic position. Second, given that /s/ is a plural marker in Spanish, it is predictable in noun phrases and certain verbal constructions, hence different prosodic domains, parts of speech and types of constituents are explored to seek functional explanations of /s/ distribution [5]. Finally, since /s/ weakening is variable does not seem to be fully stabilized in the dialect, the relative prestige of the changes must be considered as a factor. Gender and age can play a role in which variant is produced [6].

To explore these issues, data were extracted from an annotated corpus of semi-structured interviews with native speakers of the dialect collected in 2016. We analysed the speech of 11 females and 17 males aged 16-50. This consisted of 90 files with 3,065 sentences in total, with 79,043 phones, from which all the occurrences of underlying /s/ were extracted and annotated as [s], [h], [ɦ] or deletions. Variables taken into account in the subsequent analysis included: i) the following sound (voiceless consonant, voiced consonant, vowel, pause), ii) sound duration, iii) log word frequency, iv) the prosodic domain (word-internal coda, word-final (clitic) position, prosodic word-final position, phrase-final position), v) part of speech (noun, verb, adjective, adverb, numeral, determiner) and vi) constituent number in cases where several /s/ sounds provide the same grammatical information, e.g. in noun phrases or reflexive verbs. These factors and their interplay have not been previously explored in CIS.

The results of the study show that while as many as four variants are attested in the dialect, there are systematic differences in their rates of occurrence depending on the phonetic context and the prosodic domain. The deletion rate is quite high across all contexts, but it is higher before voiced sounds and lower before vowels. The same contexts induce the production of [ɦ]. Voiceless [h] is most likely produced before a voiceless segment or a pause. Function words and frequent words lead to more deletions, as opposed to nouns and verbs which tend to retain the /s/ in some form. Excessive deletion is avoided at the end of a phrase, except when producing a larger constituent – the last element of a noun/verb phrase is usually the most redundant and predictable and hence more likely to be lost. This, alongside the tendency to delete the /s/ in clitic position, is in line with the functional load hypothesis. All in all, we can say that variation is modulated by the information structure around the segments in question but that the phonological context (following sound and prosodic position) plays a primary role. We have also observed that sound duration, a marker of weakening, is not that much dependent on functional or prosodic factors and is mostly dependent on the produced variant. Additionally, we found evidence showing that coda /s/ weakening is still a change in progress in the dialect: different weakening strategies are chosen depending on gender and there is a tendency to voice more among younger speakers. This suggests that voicing may be an innovation or a past innovation that is becoming the dominant strategy, at least in some contexts. Finally, the data provide evidence for resyllabification across word boundaries, which has been subject to debate recently [7]. Both the interplay of aspiration with voicing, and the comparison of sound durations across the different contexts suggest that resyllabification is complete before vowel-initial words, i.e. *las alas* 'the wings' > [la.ɦa.lah].

Input		Surface form	Context	Processes applied
alas	'wings'	[a.lah]	#	aspiration
alas	'wings'	[a.la]	#	deletion
las casas	'the houses'	[lah.ka.sa(h)]	#C-vless	aspiration
las vacas	'the cows'	[la.ba.ka(h)]	#C-voiced	deletion
las vacas	'the cows'	[laɦ.ba.ka(h)]	#C-voiced	aspiration+voicing
las alas	'the wings'	[la.ɦa.la(h)]	#V	aspiration+resyllabification +voicing
Constituent types				
vamos		'we go'		simple constituent
nos vamos		'we go' (reflexive)		phrase (two constituents)
las vacas		'the cows'		phrase (two constituents)
las vacas locas		'the mad cows'		complex phrase (three constituents)

Fig. 1. Typical pronunciations of /s/ in the dialect per context and types of constituents in the database.
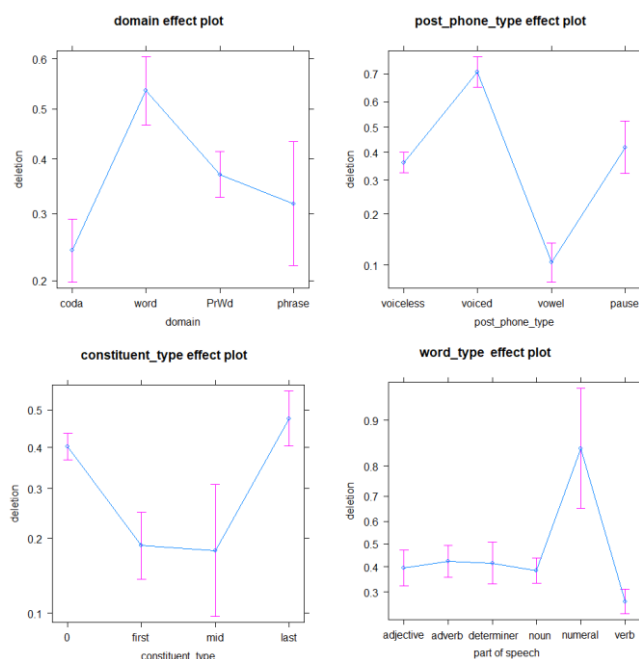

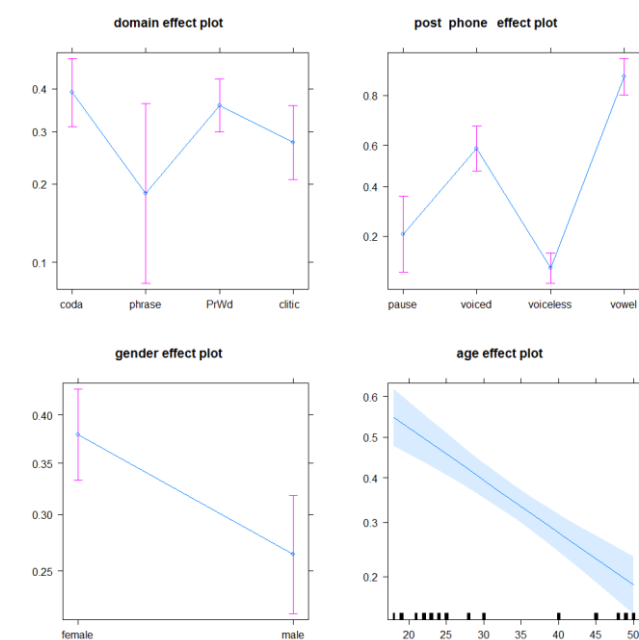Fig. 2. Predicted probabilities of deletion vs. no deletion in the data.

Fig. 3. Predicted probabilities of voiced vs voiceless aspiration in the data.

References:
[1] Terrell, Tracy (1981). Diachronic reconstruction by dialect comparison of variable constraints: s-aspiration and deletion in Spanish. *Variation omnibus* 115–124.
[2] Núñez-Méndez, Eva (2022). Variation in Spanish /s/: Overview and New Perspectives. *Languages* 7, 77.
[3] Lipski, John (2011). Socio-phonological variation in Latin American Spanish. Manuel Díaz-Campos (ed.), In *Handbook of Hispanic Sociolinguistics.* Hoboken: Blackwell.
[4] Almeida, Manuel & Díaz Alayón, Carmen (1989). *El español de Canarias*. Santa Cruz de Tenerife.
[5] Poplack, Shana (1979). *Function and process in a variable phonology. Dissertations available from ProQuest.* AAI8009446.
[6] Labov, William (2001). *Principles of Linguistic Change.: Vol. 2. External Factors.* Oxford: Blackwell.
[7] Strycharczuk, P., & Kohlberger, M. (2016). Resyllabification reconsidered: On the durational properties of word-final /s/ in Spanish. *Laboratory Phonology* 7(1), 3.