

Resyllabification reconsidered.
On the phonetic properties of derived onsets in Spanish
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In this paper, we consider the phonological representation of Spanish resyllabification. Based on evidence from two Spanish dialects, we argue that resyllabification is partial, and we discuss the implications of this proposal for a range of reports concerning phonological opacity.

Most accounts of Spanish take it that word-final consonants undergo resyllabification in running speech when the next word begins in a vowel (e.g. Harris 1969, 1983), so for instance *los ojos* ‘the eyes’ is syllabified as [lo.so.xos]. This syllabification gives rise to opacity effects in some dialects of Spanish, as derived onsets are subject to different phonological processes than canonical onsets. A well documented example involves /s/-voicing in Quito Spanish, illustrated in (1), which has been analysed as a case of overapplication by Bermúdez-Otero (2011) and Strycharczuk et al. (2013).

(1) Overapplication of /s/-voicing in derived onsets in Quito Spanish

| | UR | SR | gloss |
|------------------|-------------|--------------|---------------|
| <i>gas noble</i> | /gas#noble/ | [gaz.no.βle] | ‘noble gas’ |
| <i>gasita</i> | /gasita/ | [ga.si.ta] | ‘gauze, dim.’ |
| <i>gas acre</i> | /gas#akre/ | [ga.za.kre] | ‘acrid gas’ |

The present work revisits the resyllabification claim, based on a systematic analysis of segmental duration in a strictly controlled segmental and prosodic environment. We recorded 3 Castilian Spanish (CS) and 3 Quito Spanish (QS) speakers reading 8 repetitions of 15 test items involving /s/ in the canonical coda ($V_1s\#C$) and canonical onset ($V_1\#sV_2$) positions, as well as in the resyllabification context ($V_1s\#V_2$) (cf. Table 1). 4 of the repetitions involved normal speech, and 4 involved whispered speech. We analysed the duration of the sibilant, V_1 duration and V_2 duration.

For CS, the resyllabification analysis predicts complete neutralisation of duration between $V_1s\#V_2$ and $V_1\#sV_2$. However, we find that in derived onsets ($V_1s\#V_2$), /s/ is on average 12 ms shorter compared to canonical onsets ($V_1\#sV_2$; $p < .001$). At the same time, /s/ in derived onsets is 20 ms longer than /s/ in canonical codas ($p < .001$). These findings indicate that resyllabification in CS is partial: derived onsets are distinct from both canonical onsets and canonical codas. We further confirm that sibilant duration in derived onsets is unimodally distributed, which supports the interpretation that /s/ in this context forms a single intermediate category.

For QS, a similar comparison of segmental duration is complicated by the effects of /s/-voicing: /s/ surfaces as voiced in derived onsets, but in canonical onsets, /s/ is always realised as voiceless. Consequently, it is difficult to tease apart segmental and prosodic influences on duration. Nevertheless, we make the following observations about QS, which speak against complete resyllabification. In terms of V_1 duration and /s/ duration, derived onsets pattern consistently with canonical codas. Crucially, the voiced sibilants in derived onsets (*ratas hembras*) show no significant lengthening compared to voiced sibilants in coda position (*sopas densas*) ($M=7$ ms, $p=.42$), whereas voiceless sibilants in canonical onsets (*boca seria*) are considerably longer than voiceless consonant in codas (*gatas tensas*) ($M=45$ ms, $p < .001$). In fact, results from normal speech do not show any support for resyllabification in QS, partial or complete. However, we find support in favour of (partial)

resyllabification from whispered speech in this dialect, where the duration of V_1 preceding derived onsets is significantly greater than V_1 duration in the context of a canonical coda ($M=14\text{ms}$, $p=.002$).

Taken together, our results indicate that in both CS and QS, derived onsets form an independent prosodic category, intermediate between canonical onsets and canonical codas. We represent this relationship as partial resyllabification, where /s/ is associated with both the word-initial onset and word-final coda slots. Our results are in line with previous findings on French, which show evidence for partial resyllabification in production and perception (Fougeron, 2007; Gaskell et al., 2002; Spinelli et al., 2003). The representation we propose allows us to explain the diachronic origins of phonological processes that are unique to derived onsets, such as QS /s/-voicing: since derived onsets and canonical onsets are representationally distinct, they are likely to develop asymmetries in sound change. In addition, subphonemic variation concerning /s/ duration in the derived onset environment offers a potential solution to the actuation problem, as reduced duration may play a role in the phonologisation of voicing. However, our analysis entails that the application of QS /s/-voicing in derived onsets is entirely transparent, *contra* Bermúdez-Otero (2011) and Strycharczuk et al. (2013). Finally, our findings call for a closer scrutiny of other cases in Spanish dialects where resyllabification has been argued to trigger opacity effects, such as /s/-aspiration and /n/-velarisation.

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|------------------------|-------------|----------------------|-----------------|
| Canonical onset | $V_1\#sV_2$ | <i>boca seria</i> | ‘serious mouth’ |
| | $V_1s\#N$ | <i>copas medias</i> | ‘half cups’ |
| Canonical coda | $V_1s\#T$ | <i>gatas tensas</i> | ‘tense cats’ |
| | $V_1s\#D$ | <i>sopas densas</i> | ‘dense soups’ |
| Derived onset | $V_1s\#V_2$ | <i>ratas hembras</i> | ‘female rats’ |

Table 1: Example test items

References

- Bermúdez-Otero, R. (2011). Cyclicity. van Oostendorp, M., C. J. Ewen, E. Hume & K. Rice (eds.), *Blackwell companion to phonology*, Chichester: Wiley-Blackwell, vol. IV, pp. 2019–2048.
- Fougeron, C. (2007). Word boundaries and contrast neutralization in the case of *enchaînement* in French. Cole, J. & H. J.I. (eds.), *Papers in laboratory phonology IX: Change in phonology*, Berlin: Mouton de Gruyter, pp. 609–642.
- Gaskell, M. G., E. Spinelli & F. Meunier (2002). Perception of resyllabification in French. *Memory & cognition* 30, pp. 798–810.
- Harris, J. W. (1969). *Spanish phonology*. Cambridge, MA: MIT Press.
- Harris, J. W. (1983). *Syllable structure and stress in Spanish: a nonlinear analysis*. Cambridge, MA: MIT Press.
- Spinelli, E., J. M. McQueen & A. Cutler (2003). Processing resyllabified words in French. *Journal of Memory and Language* 48, pp. 233–254.
- Strycharczuk, P., M. van ’t Veer, M. Bruil & K. Linke (2013). Phonetic evidence on phonology-morphosyntax interactions. Sibilant voicing in Quito Spanish. *Journal of Linguistics* Available on CJO 2013 doi:10.1017/S0022226713000157.