



Evidence of a Pitch Accent in Saguenay French

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Introduction: Prominence in French

- Prominence in French is conventionally described as being assigned to the final syllable of phrases (no lexical stress), as in (1) [e.g. 3, 7, 9, 10]
- However, data from across the French-speaking world show that *prominence shift* is frequent (see fig. 1), as in (2) [1, 6, 12]
- Why would a language consistently described as marking phrasal domain edges so often deviate from this pattern?

- (1) *La future pa TRONNE* (2) *Le joli GARçon*
 'The future boss' 'The handsome boy'

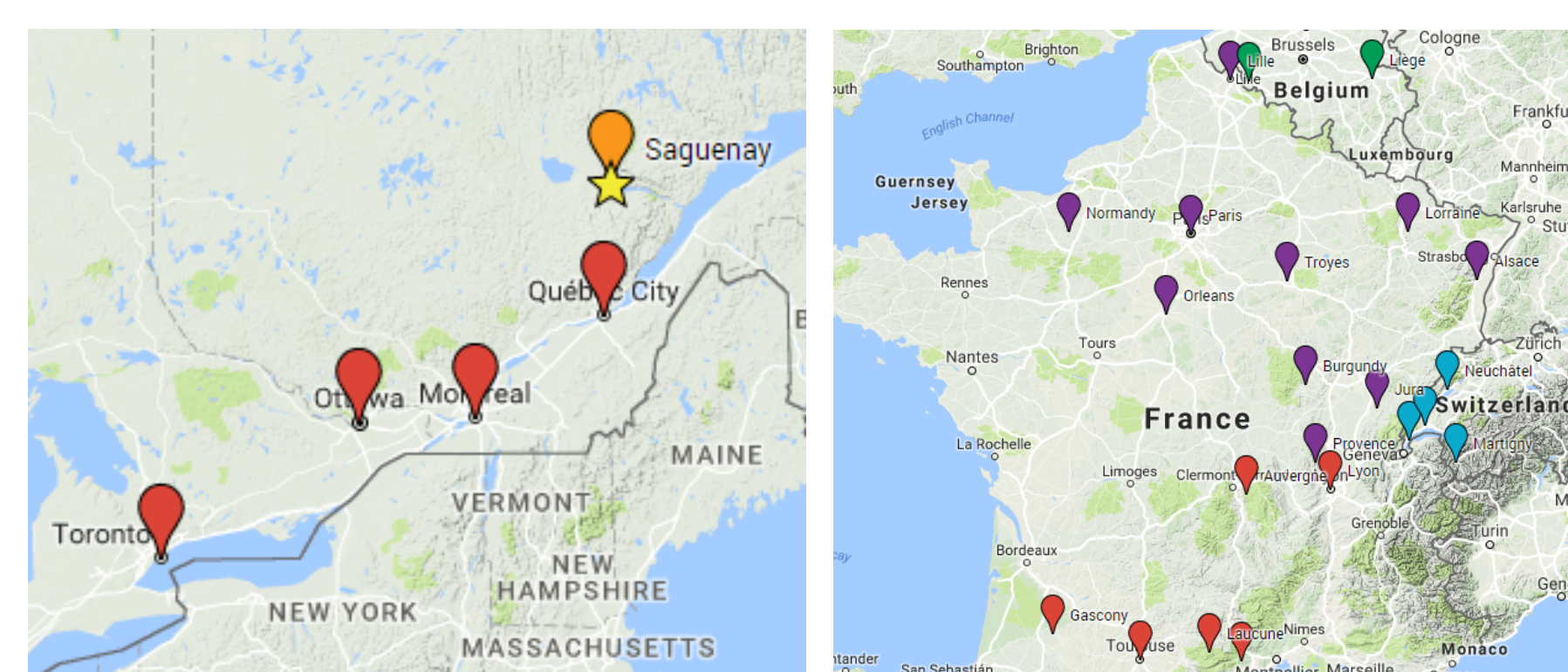


Figure 1: Locations in Eastern Canada (left) and Europe (right) where empirical studies demonstrate non-final prominence.

Question & Predictions

What motivates prominence shifting?

- Heavy syllables attract prominence
- Stems signaled through greater prominence

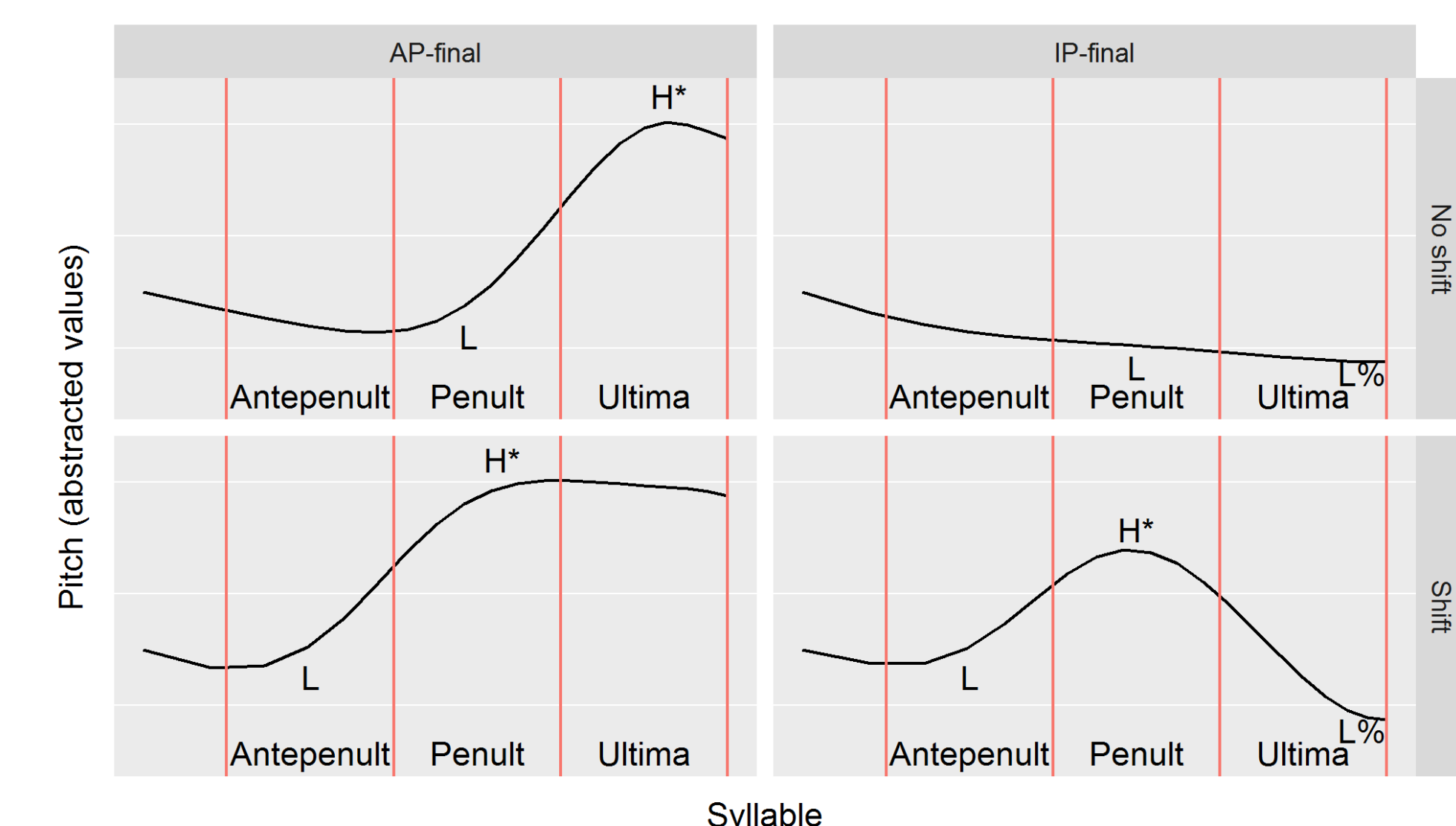


Figure 2: The predicted contours based on prominence shifting.

Methods

- Read passage from the *Phonologie du français contemporain* corpus [4, 5, 13], 11 native French speakers from Saguenay, Québec
- Force-aligned [11], 1368 polysyllabic AP-final words extracted and measured (pitch max. and range, rhyme duration and max. amplitude)
- Mixed-effects linear regression with by-speaker and by-word random slopes and intercepts to predict the *difference* between last two syllables

Results: Penults' coda weight (fig. 3)

- Penults have significantly larger pitch ranges, longer durations and higher amplitudes when heavy (in all descriptions, differences are *relative cue values*)

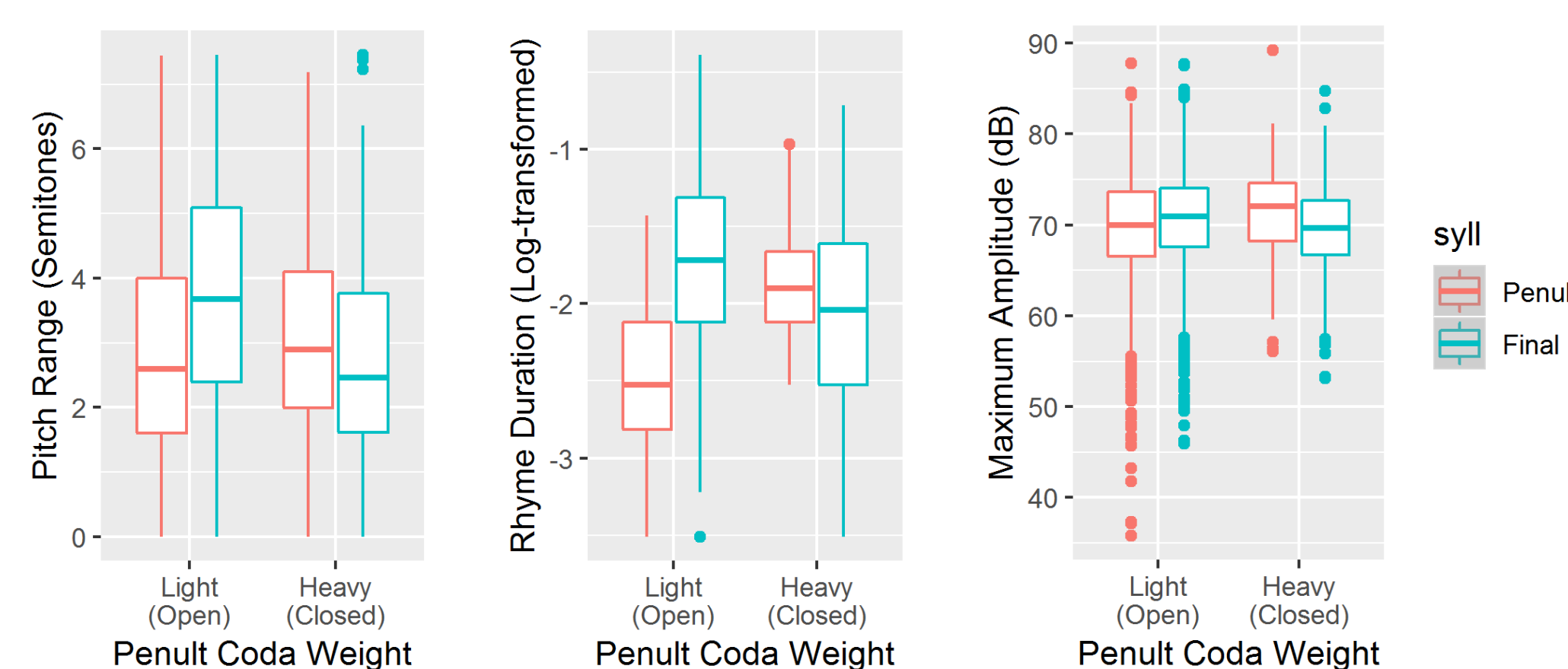


Figure 3: Results for penult coda weight.

Results: Penults' vowel weight (fig. 4)

- Penults have significantly longer duration, larger pitch range and higher amplitude when heavy
- Trend for higher pitch maxima

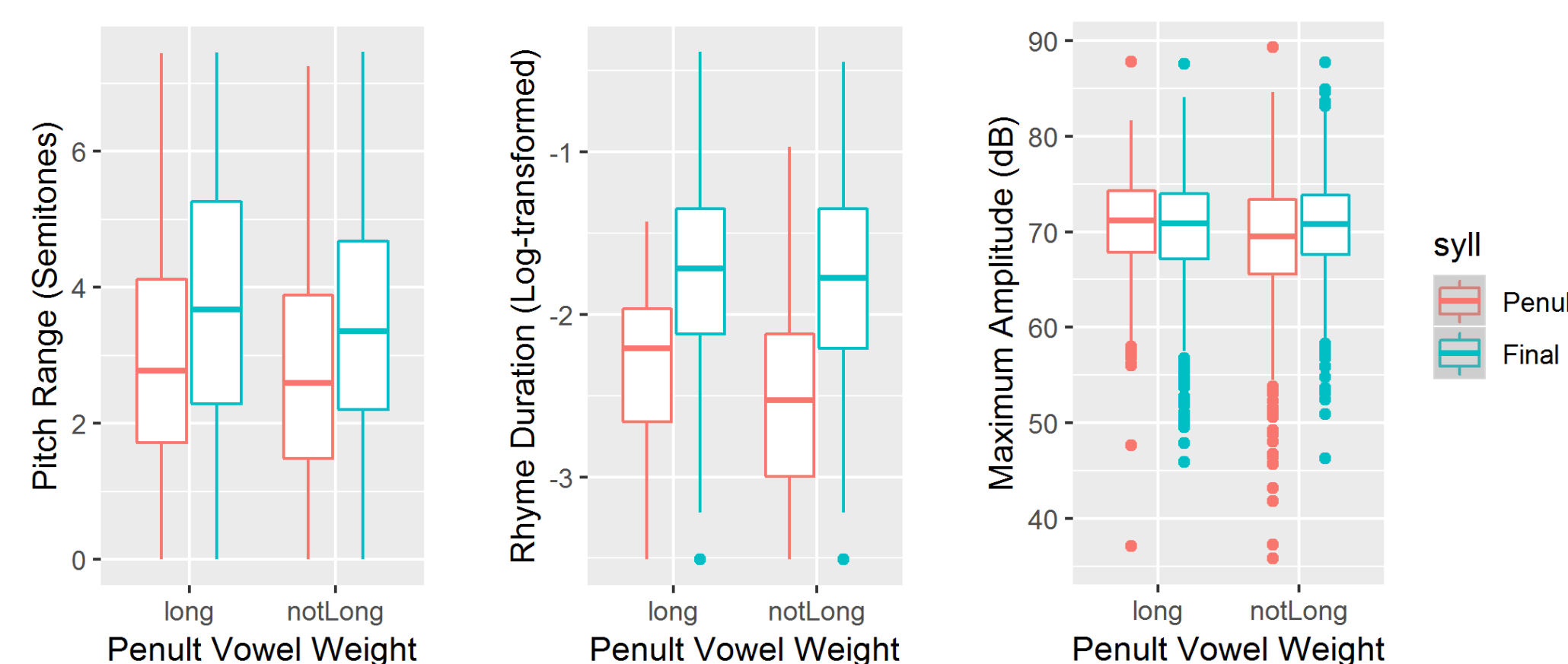


Figure 4: Results for penult vowel weight.

Results: Morphological structure (fig. 5)

- Base-final penults have higher values for all cues examined compared to penults that aren't base-final.

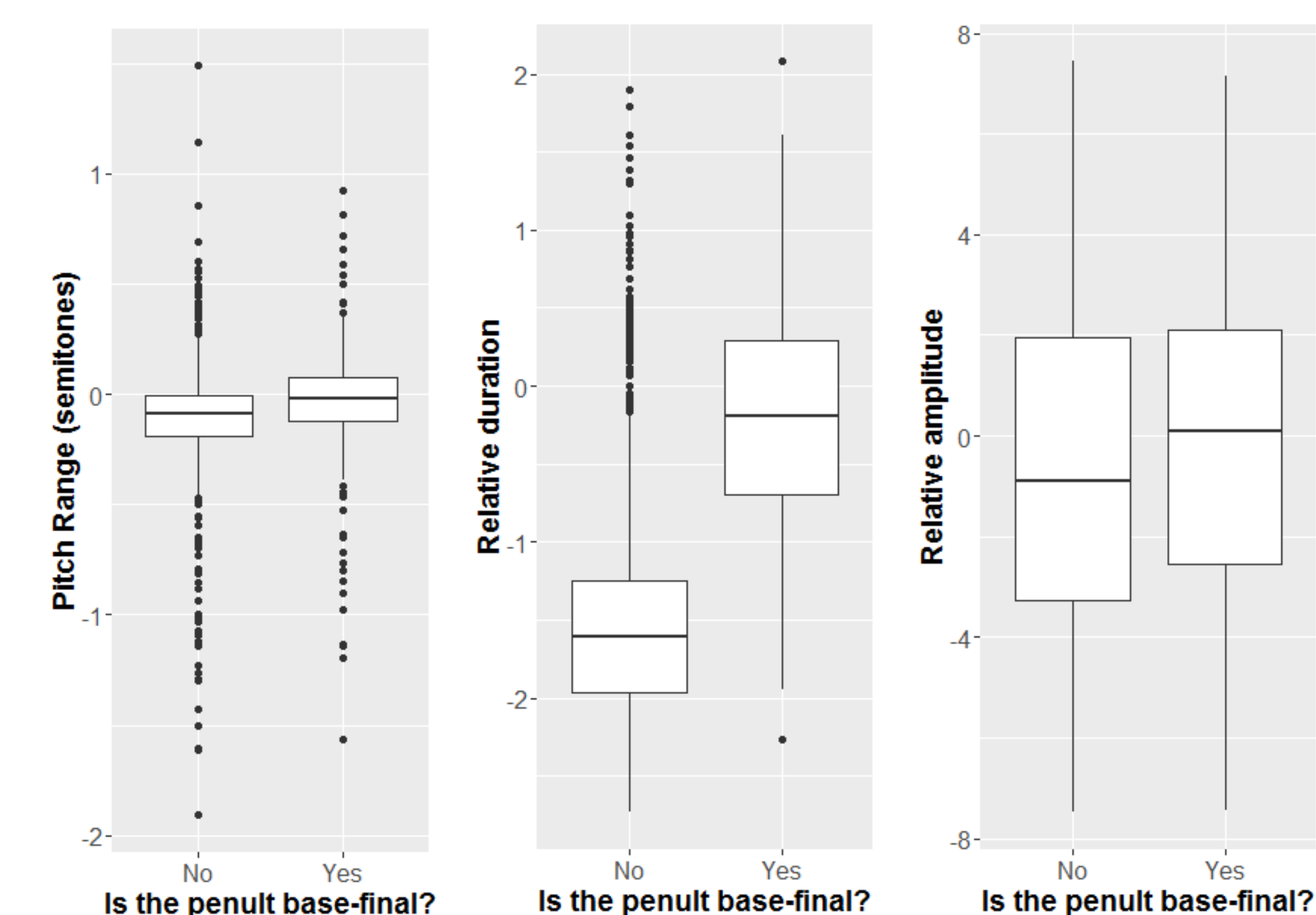


Figure 5: Results for the presence of a morphological boundary between the penult's vowel and the final syllable's vowel.

Results: Final syllables' coda weight (fig. 6)

- Final codas are associated with final syllables having a significantly larger pitch range, a higher maximum pitch, longer duration, and greater amplitude

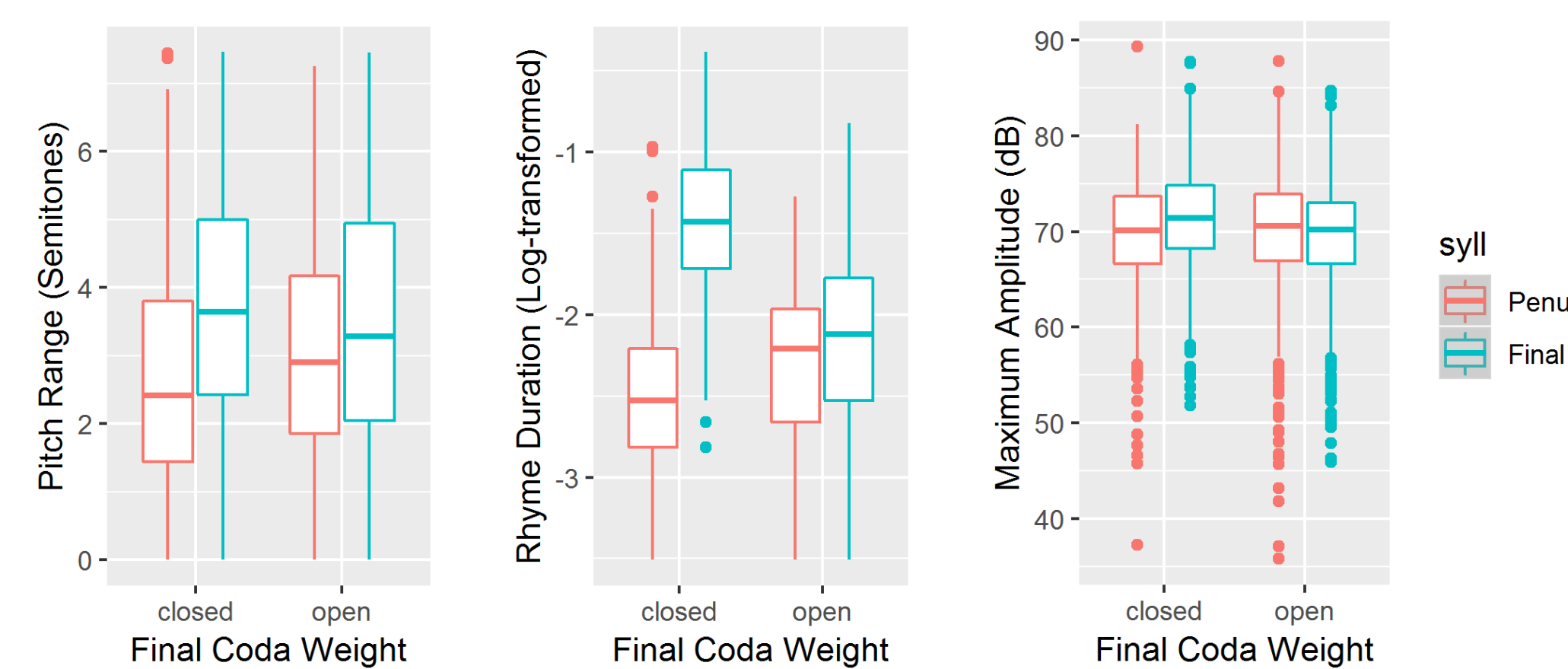


Figure 6: Results for the final syllable's coda weight.

Results: Final syllables' vowel weight (fig. 7)

- Final vowel weight shows no significant main effects; final vowel weight is only significant in interaction terms.

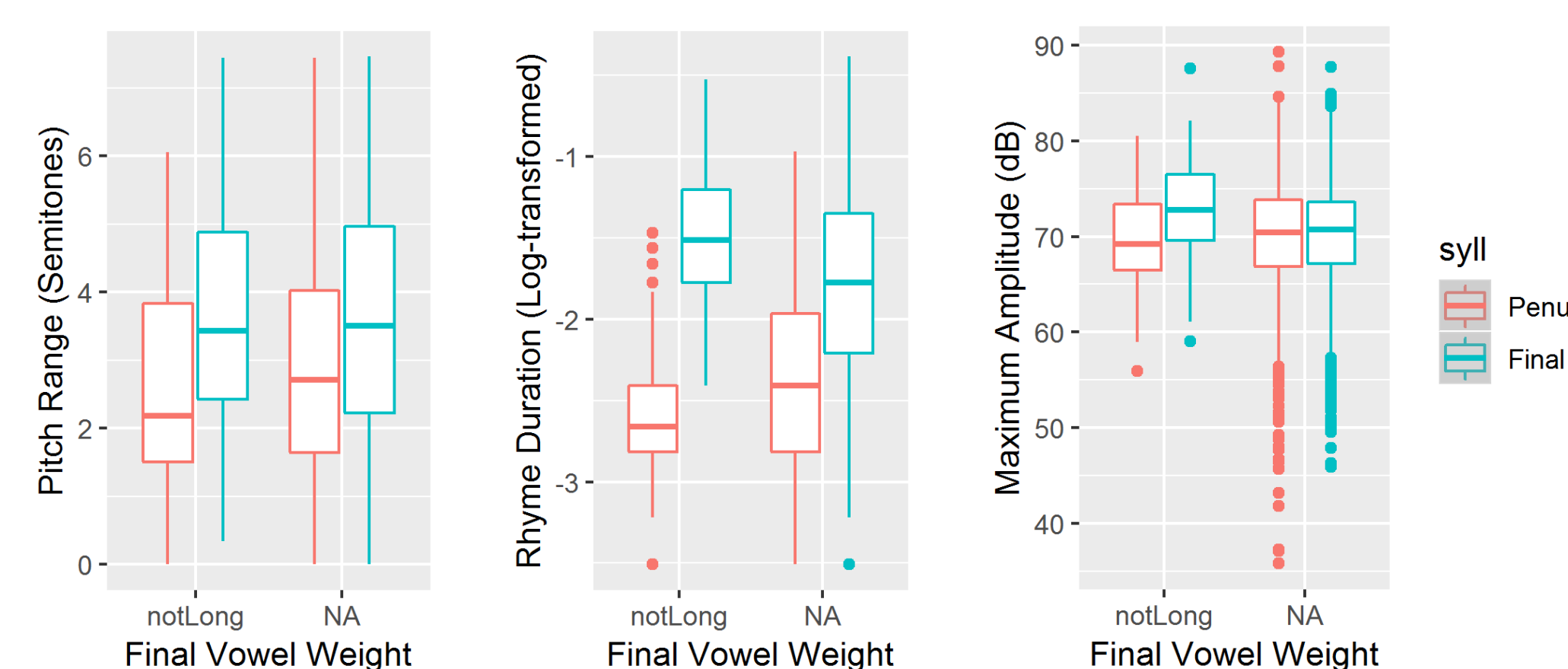


Figure 7: Results for the final syllable's vowel weight.

Results: Interaction between morphology and weight (fig. 8)

- Here we see a separation of cues; the acoustic cues don't all show the same patterns
- Weight effects for amplitude are enhanced in penults, but pitch-range and duration differences are larger without a following morpheme boundary.

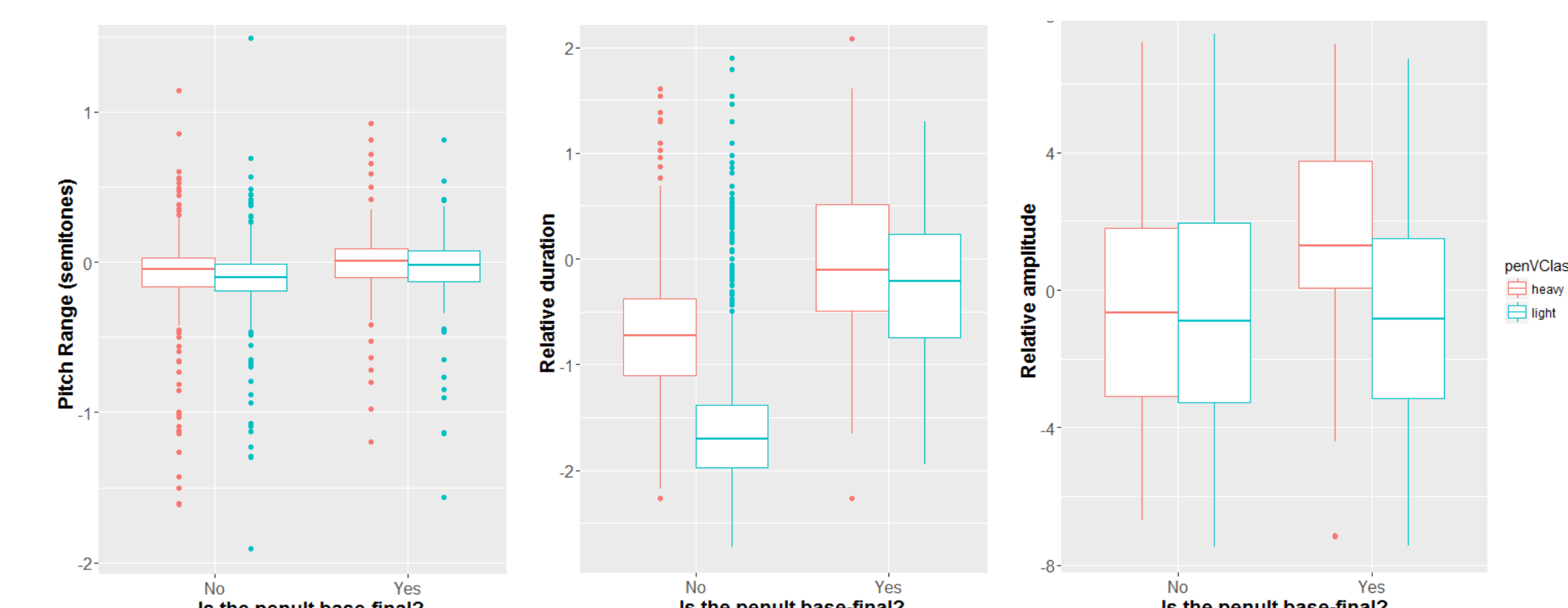


Figure 8: Results for the presence of a morphological boundary between the penult's vowel and the final syllable's vowel.

Results: Interacting final-syllable weight

- Syllables with both a coda and a heavy vowel have significantly longer durations and higher amplitudes than syllables with only one of the two
- Those syllables also have a trend for larger pitch ranges

Discussion

- Weight affects the prominence cues in the expected direction, consistent with weight effects motivating prominence shifts
- There appears to be a trade-off; increases to one syllable's acoustic cue values often seems to be associated with decreases to the other syllable's
- We postulate that prominence is a pitch accent attracted to heavy syllables
- In French, heavy vowels in final syllables are only phonetically long if the syllable is also closed [2, 14], which prominence predicts
- Overall, base-final syllables are more prominent
- Separation of acoustic cues, meaning that the suprasegmentals can simultaneously offer morphological and phonological information

Future work

- Test other dialects: rates expected to vary by region, but the same patterns predicted
- Distinguish types and shapes of morphemes
- Examine spontaneous speech: larger differences and interactions with phonological processes expected

Bibliography

- [1] Carton, F., M. Rossi, D. Autesserre, and P. Léon. 1983. *Les accents du français*. Paris: Hachette. [2] Côté, Marie-Hélène. 2012. Laurentian French (Québec): extra vowels, missing schwas and surprising liaison consonants. In *Phonological variation in french: Illustrations from three continents*, ed. R. Gess, C. Lyche, and T. Meisenburg. Amsterdam: John Benjamins. [3] Delattre, P. 1939. Accent de mot et accent de groupe. *The French Review* 13:141-146. [4] Durand, J., B. Laks, and C. Lyche. 2002. La phonologie du français contemporain: usages, variétés et structure. In *Romanistische korpuslinguistik - korpora und gesprochene sprache/romance corpus linguistics - corpora and spoken language*, ed. C. Pusch and W. Raible, 93-106. Tübingen: Gunter Narr Verlag. [5] Durand, J., B. Laks, and C. Lyche. 2009. Le projet PFC: une source de données primaires structurées. In *Phonologie, variation et accents du français*, ed. J. Durand, B. Laks, and C. Lyche, 19-61. Paris: Hermès. [6] Goldman, J.-P., and A.-C. Simon. 2007. La variation prosodique régionale en français (Liège, Vaud, Tournai, Lyon). *Regards croisés sur la phonologie du français contemporain* (PFC 2007, 6-8 Dec., Paris). [7] Grammont, M. 1914. *Traité de phonétique*. Paris: Delagrave. [8] Hayes, Bruce. 1995. *Metrical stress theory: Principles and case studies*. Chicago: Chicago University Press. [9] Jun, S.-A., and C. Fougeron. 1995. The accentual phrase and the prosodic structure of french. In *Proceedings of the International Conference of Phonetic Sciences*, vol. 2, 722-725. Stockholm. [10] Jun, S.-A., and C. Fougeron. 2000. A phonological model of french intonation. In *Intonation. Analysis, modeling and technology*, ed. A. Botinis, 209-242. Dordrecht: Kluwer Academic Publisher. [11] Milne, Peter M. 2014. The variable pronunciations of word-final consonant clusters in a force aligned corpus of spoken French. Doctoral Dissertation, University of Ottawa. [12] Simon, C. 2011. *La prosodie des accents régionaux en français. état des lieux*. Presented at Journées PFC (Paris 2011). [13] <http://projet-pfc.net/>. 2006. [14] Walker, Douglas. 1984. *The pronunciation of canadian french*. Ottawa, Canada: University of Ottawa Press.

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