

# Variability in word-final r-vocalization in Providence

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<sup>1</sup> Research supported by National Science Center (Poland) grant no. UMO-2017/26/D/HS2/00027  
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## Introduction

/r/-vocalization (*car* [kɑ:], *better* ['bɛtə]) has been receding in the US; more slowly in the North, (incl. Providence, RI) than in the South (Labov, Ash, and Boberg 2006). Word-final /r/'s followed by vowel-initial words (*car is*) were excluded from investigation in (Labov 1966), as /r/ was assumed to be less likely to vocalize in this context.

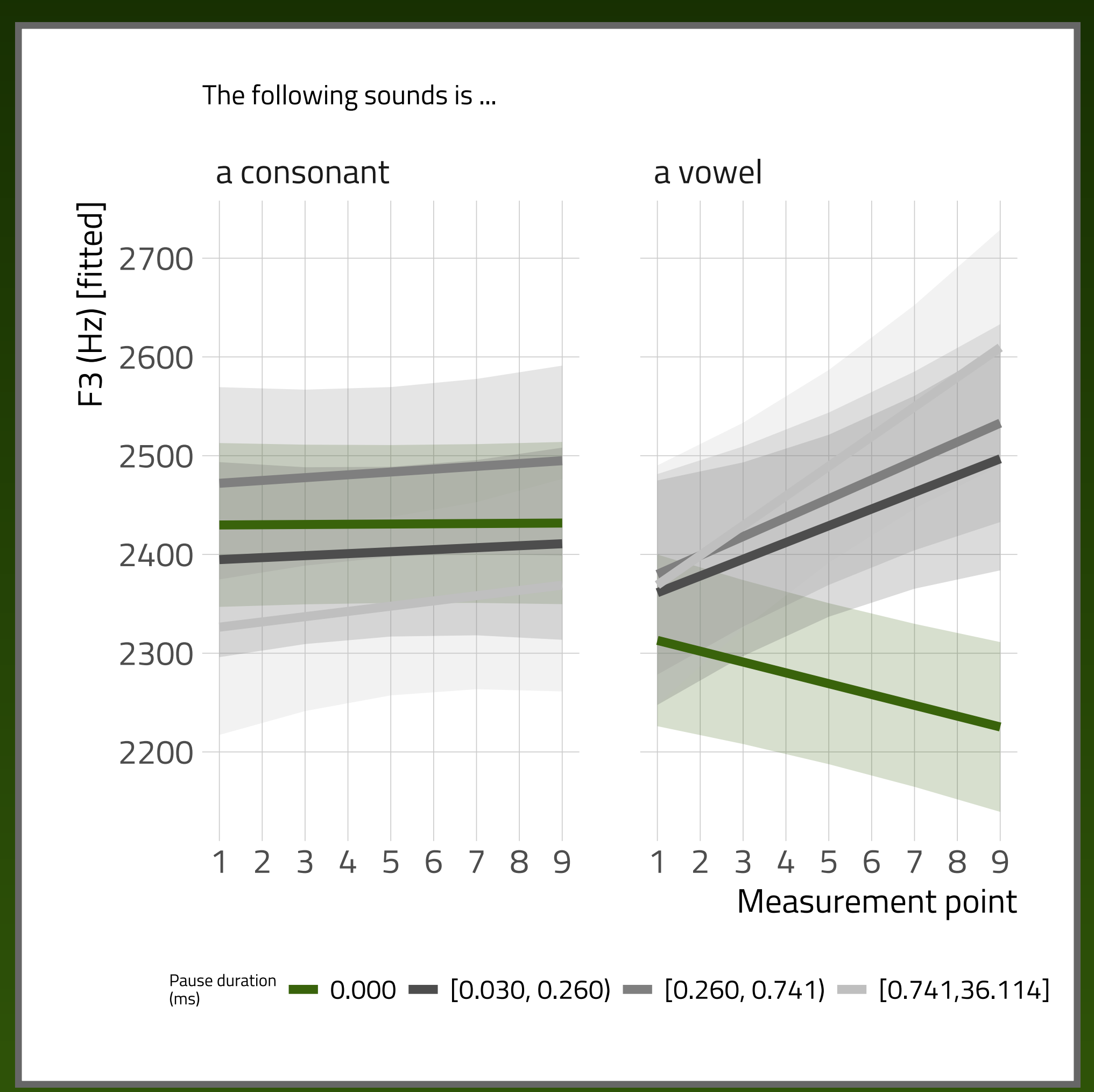
## Objectives

1. Test the influence of local context on word-final /r/-vocalization.
2. Test a contextual frequency effect (cf. Forrest 2017): are /r/'s in words more frequently followed by consonant-initial words more likely to vocalize?

## Methods

1. Data: Crimetown podcast
2. Five male speakers with variable rhoticity (cf. Urbanek 2018)
3. Transcripts hand-aligned at breath-group level in Praat
4. Force-aligned with FAVE (Rosenfelder et al. 2014) and queried with LaBB-CAT (Fromont and Hay 2012)
5. Mixed-effects linear regression model ( $N = 3,723$ ) fitted with *lme4* (Bates et al. 2015) in R (R Core Team 2018), with all predictors interacting with `measurement point` to model formant trajectories (cf. Stuart-Smith et al. 2015)
6. Proportion of occurrences before C-initial words estimated with SUBTLEX-US (Brysaert and New 2009)

More r-vocalization:  
 (a) before consonants  
 (b) after schwa  
 (c) in shorter /Vr/ sequences



## Results

When there is no pause (green lines, center plot), vowel-initial words disfavor vocalization on the previous word.

Below: more vocalization when the vowel is a schwa. Also, the longer the /Vr/ sequence, the lower F3 overall (~ the less vocalization).

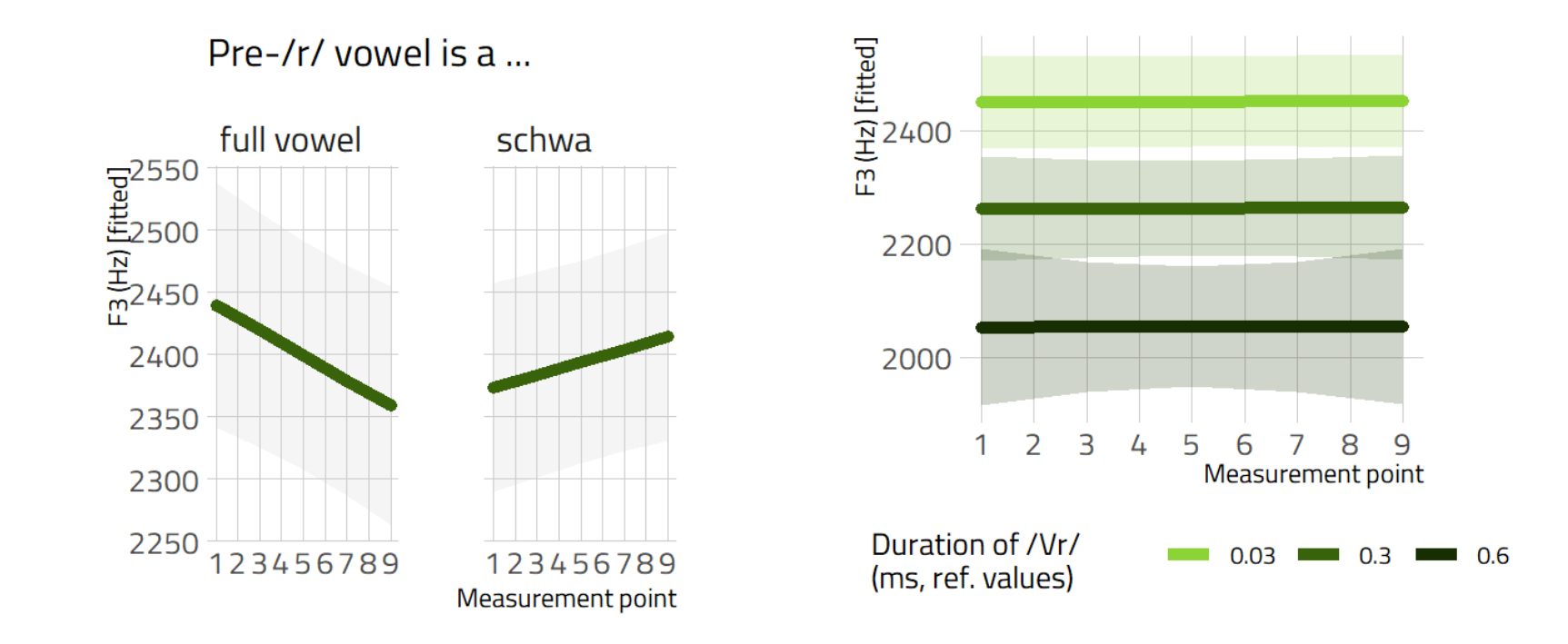


Figure 1: Effects of schwa vs full vowel (left), and of duration of /Vr/ sequence (right)

The contextual frequency effect was not confirmed.

### Often before consonants = more /r/

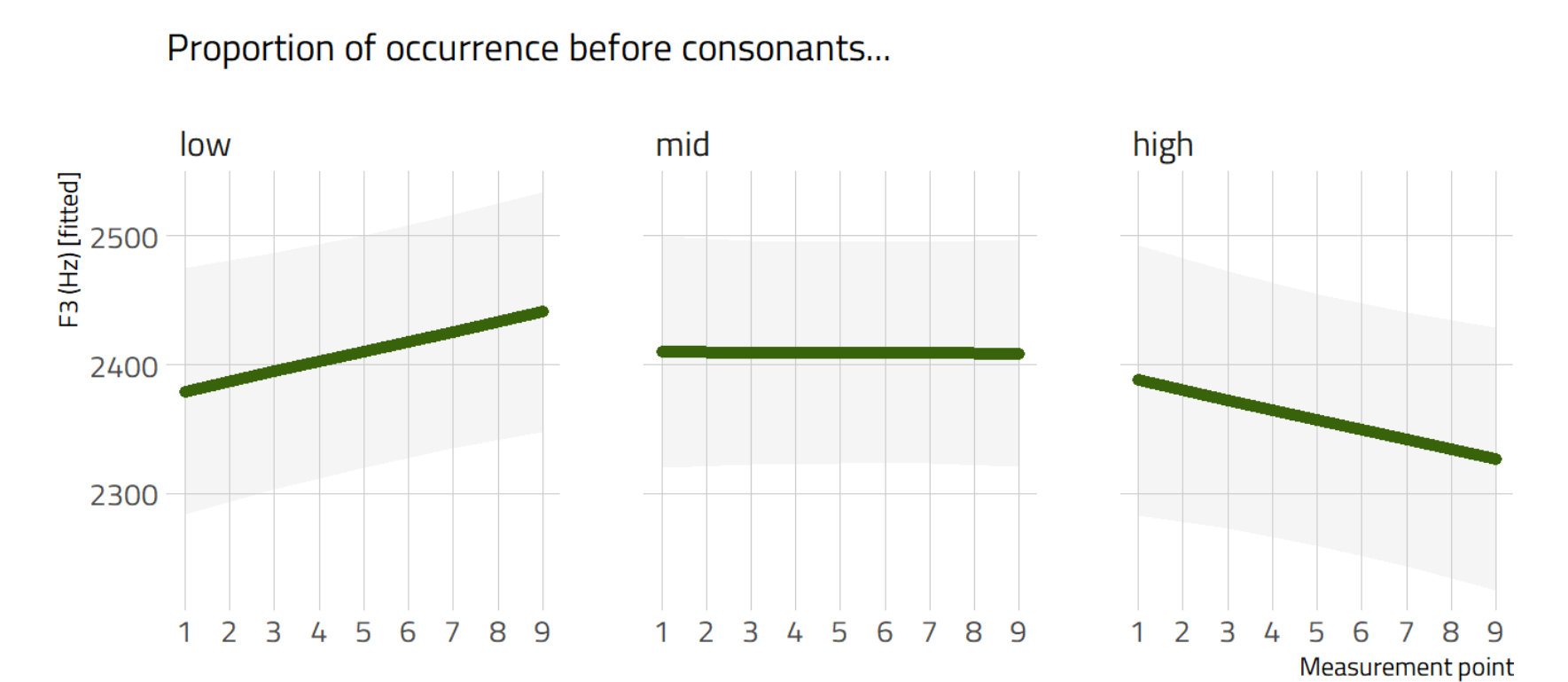


Figure 2: Contextual frequency effect

Speaker selection: variably rhotic, with numerous tokens.

Speaker	No. of tokens	% vocalized in (Urbanek 2018)
Tony Fiore	733	81
Jerry Tillinghast	426	75
Bobby Walason	643	69
Buddy Cianci	1328	38
Charles Kennedy	593	20

## References

Bates, Douglas, Martin Mächler, Ben Bolker, and Steve Walker. 2015. "Fitting Linear Mixed-Effects Models Using lme4." *Journal of Statistical Software* 67 (1): 1–48. <https://doi.org/10.18637/jss.v067.i01>.

Brysaert, Marc, and Boris New. 2009. "Moving Beyond Kučera and Francis: A Critical Evaluation of Current Word Frequency Norms and the Introduction of a New and Improved Word Frequency Measure for American English." *Behavior Research Methods* 41 (4): 977–90.

Forrest, Jon. 2017. "The Dynamic Interaction Between Lexical and Contextual Frequency: A Case Study of (ɪŋ)." *Language Variation and Change* 29 (02): 129–56. <https://doi.org/10.1017/S09545794517000072>.

Fromont, Robert, and Jennifer Hay. 2012. "LaBB-CAT: An Annotation store." In *Proceedings of the Australasian Language Technology Association Workshop*, 113–17. Dunedin, New Zealand.

Labov, William. 1966. *The Social Stratification of English in New York City*. Washington, D.C.: Center for Applied Linguistics.

Labov, William, Sharon Ash, and Charles Boberg. 2006. *The Atlas of North American English*. Mouton de Gruyter. <https://doi.org/10.1515/9783110167467>.

R Core Team. 2018. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. <https://www.R-project.org/>.

Rosenfelder, Ingrid, Josef Fruehwald, Keelan Evani, Scott Seyfarth, Kyle Gorman, Hilary Prichard, and Jiahong Yuan. 2014. "Fave 1.2.2." <https://doi.org/10.5281/zenodo.9846>.

Stuart-Smith, J., R. Lennon, R. Macdonald, D. Robertson, M. Sostkuthy B. Jose, and L. Evers. 2015. "A Dynamic Acoustic View of Real-Time Change in Word-Final Liquids in Spontaneous Glaswegian." In *18th International Congress of Phonetic Sciences*. Glasgow, UK.

Urbanek, Krzysztof. 2018. "The Prevalence of R-Lessness in Southeastern New England English."

