

# Phonology of gender in French and English given names

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# Overview

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**Question:** Is there a cross-linguistic (potentially universal) sound symbolic connection between gender and phonological features?

**Method:** Investigate phonological tendencies and patterns in English and French names

- **Corpus Analysis:** Explore patterns in male and female French and English names & compare the two to see what is similar and what is different
- **Experiment:** Explore if people internalize cross-linguistic or language-specific phonological naming patterns

## Outline

1. Review trends in previous research
2. Corpus analysis
3. Experiment
4. Conclusion

# English Tendencies

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	Tendency	Examples	Sources
<i>Stress</i>	Like nouns, names are more likely to have initial stress than non-initial stress	<u>B</u> randon <u>C</u> ara	Cutler et al. 1990; Slater & Feinman 1985
	Female names are more likely to have non-initial stress than male names	<u>N</u> athan Sa <u>m</u> antha	Cutler et al. 1990; Slater & Feinman 1985
<i>Length</i>	Female names are longer and have more syllables than male names	Jack (1) Ju.li.a (3)	Cutler et al. 1990; Slater & Feinman 1985; Wright et al. 2005
<i>Syllable Structure</i>	Female names have a higher ratio of open-to-total syllables than male names	Sp <u>e</u> n <u>.</u> ce <u>r</u> E.m <u>m</u> a	Slater & Feinman 1985

# English Tendencies

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	Tendency	Examples	Sources
<i>Initial sound</i>	Female names are more likely to start with a vowel than male names	<u>B</u> ruce <u>A</u> bigail	Wright et al. 2005
<i>Final sound</i>	Female names are more likely to end with a vowel than male names	Simon <u>u</u> Brianna <u>a</u>	Slater & Feinman 1985; Wright et al. 2005
<i>Vowel segments</i>	Female names are more likely to contain [i] and less likely to contain [ʊ], [ʌ] or [ɔ] than male names	<u>J</u> ohn <u>E</u> ve	Cutler et al. 1990
	Female names are more likely to contain high and/or front vowels than male names	<u>J</u> ackson <u>J</u> une	Wright et al. 2005
<i>Consonant segments</i>	Female names are more likely to contain round consonants ([l], [m], [n]) than male names	Cody Bel <u>l</u> inda	Sidhu & Pexman 2015

# Corpus Analysis

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## Goals

1. Look for cross-linguistic patterns by investigating phonological patterns in given names from two languages
2. Verify the trends found in previous studies for English given names

## Possible Outcomes

1. If patterns are similar in English and French, this may indicate that they are cross linguistic
2. If patterns are not similar in English and French, this suggests that the patterns are English-specific and not cross-linguistic

# Corpus Analysis – Data Collection

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## Sources

- ServiceOntario (2016a, b) baby name database – 2013
- Retraite Québec (2017) baby name database – 2013

## Collection Method

- 138 (Ontario) or 200 (Québec) most popular male and female names
- Names were phonetically transcribed
- **Exclusions:** Duplicate spellings of the same names, non French or English names

## Total Number of Names in Corpus

- **English:** 116 female, 122 male
- **French:** 107 female, 92 male

# Corpus Analysis – Coding Schema

Factor	Criteria	Levels	e.g. 'ε.mə
<i>Number of Syllables</i>	Number of syllables in the name	Continuous (integers)	2
<i>Open Syllable Proportion</i>	Number of open syllables divided by total number of syllables	Continuous (range 0-1)	1
<i>Initial Sound Type</i>	Is the initial sound a consonant or a vowel?	C (consonant), V (vowel)	V
<i>Initial Syllable Type</i>	Is the initial syllable open or closed?	O (Open), C (Closed)	O
<i>Final Syllable Type</i>	Is the final syllable open or closed?	O (Open), C (Closed)	O

# Corpus Analysis – Coding Schema

Factor	Criteria	Levels	e.g. 'ε.mə
<i>High Vowel Proportion</i>	Number of high vowels divided by number of syllables	Continuous (range: 0-1)	0
<i>Low Vowel Proportion</i>	Number of low vowels divided by number of syllables	Continuous (range: 0-1)	0
<i>Back Vowel Proportion</i>	Number of back vowels divided by number of syllables	Continuous (range: 0-1)	0
<i>Round Consonant Proportion</i>	Number of /l/, /m/, /n/ in the name divided by total number of consonants	Continuous (range: 0-1)	1
<i>Sharp Consonant Proportion</i>	Number of /p/, /t/, /k/ divided by total number of consonants	Continuous (range: 0-1)	0
<i>Stress Placement</i>	Primary stress location from left to right	1, 2, 3	1
<i>Nasal Vowel Proportion</i>	Number of nasal vowels divided by total number of vowels	Continuous (range: 0-1)	0



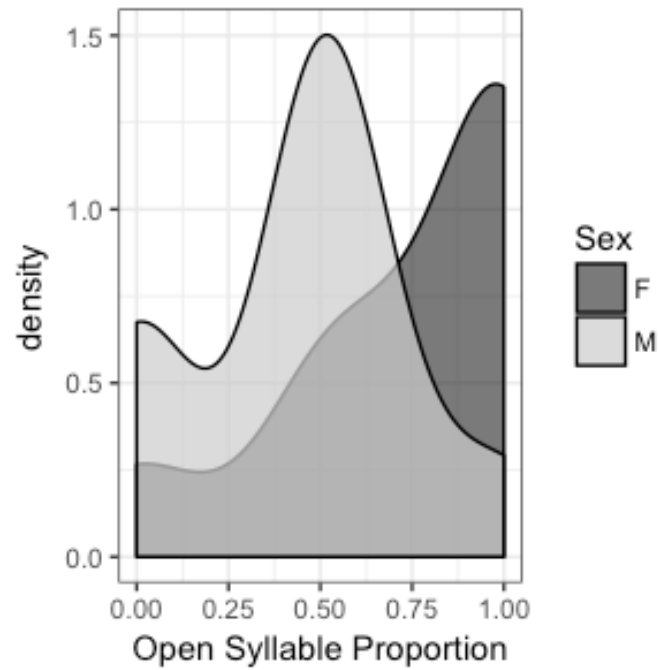
# Corpus Analysis – Results

Factor	Trend		Univariate		Multivariate	
	EN	FR	EN	FR	EN	FR
<i>Number of Syllables</i>	✓	✓	✓	•		
<i>Open Syllable %</i>	✓	✓	✓	✓		✓
<i>Initial Sound Type</i>	✓	✓		✓		✓
<i>Initial Syllable Type</i>	✓	✓	✓		x	x
<i>Final Syllable Type</i>	✓	✓	✓		✓	•
<i>High Vowel %</i>	✓		✓			
<i>Low Vowel %</i>	✓		✓		x	•
<i>Back Vowel %</i>	✓	✓	•	✓		
<i>Round Consonant %</i>	✓	✓	•	✓		
<i>Sharp Consonant %</i>	✓	✓		✓		✓
<i>Stress Placement</i>	✓		✓		✓	
<i>Nasal Vowel %</i>		✓		✓		

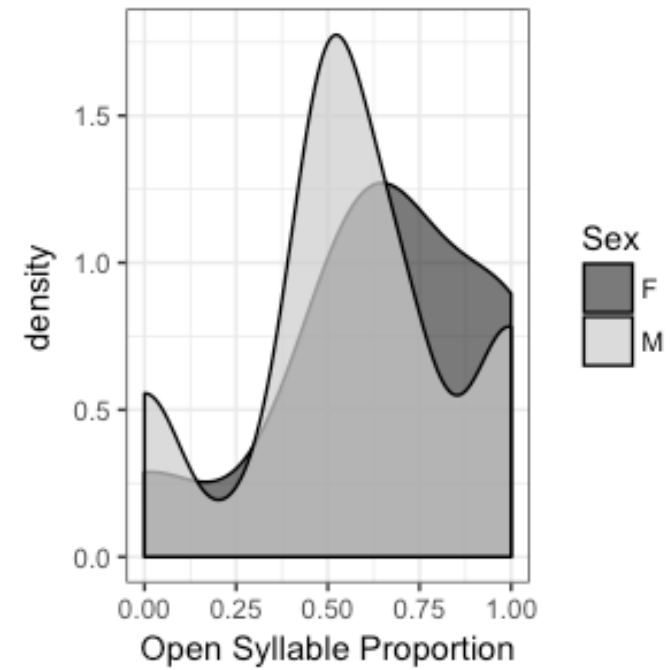
# Open Syllable Proportion

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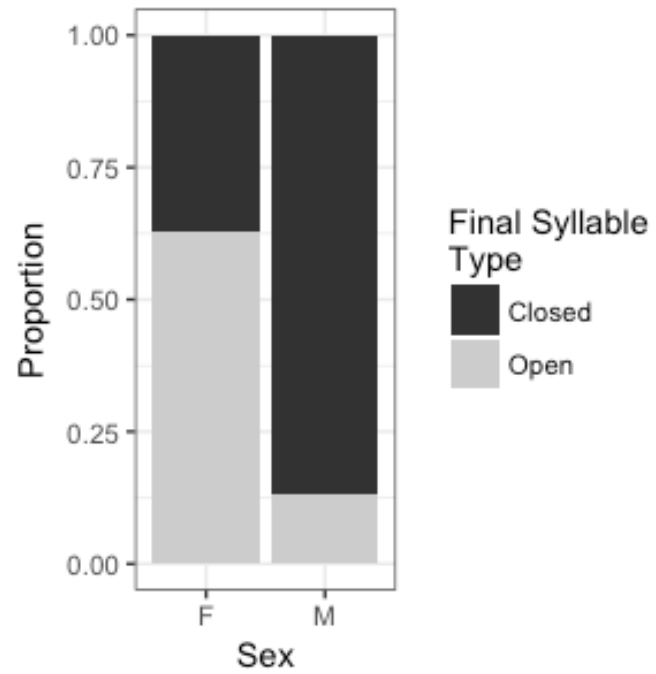
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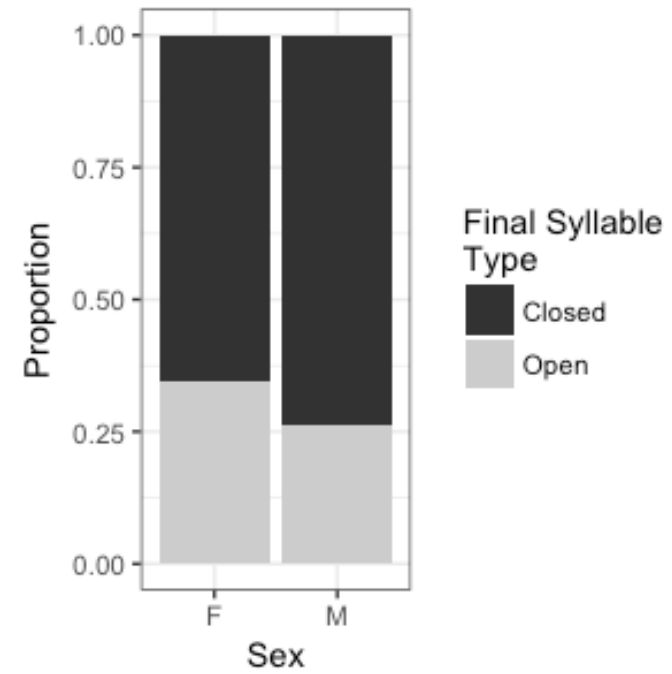
# Final Syllable Type

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# Corpus Analysis – Discussion

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Most factors trend in the same direction in both languages

Which factors are significant differs between the languages, particularly in the multivariate analysis

## **Cross-linguistic or language specific?**

- Results suggest patterns could be cross-linguistic or language specific
- If the patterns are cross linguistic, which ones are most important could vary across languages
- The analysis needs to be extended to other, genetically unrelated languages

# Name Gendering Experiment

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## Goal

- To explore if people internalize and actively make use of phonological naming patterns

## Hypothesis

- If participants have internalized the patterns, we should see that they rate phonologically female names as more female than those that are phonologically male.

# Experiment – Methodology

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## **Participants**

- 27 monolingual speakers of North American English
- 9 participants were excluded from the analysis, leaving 18 participants

## **Stimuli – Main Task**

- 20 minimal pairs of nonce names which varied in terms of one of 6 factors: number of syllables, final syllable type, presence of a back vowel, presence of a round consonant, stress placement and presence of a nasal vowel
- Stimuli were divided into French and English groups (10 pairs each)
- Stimuli were recorded by 2 female phonetically trained linguists whose native languages were Canadian English and Canadian French

**Other Tasks:** Language background questionnaire, AX discrimination tasks

# Experiment – Methodology

## Task 3 - Instructions

A new family from Ottawa has moved in next door. They have two kids: a boy and a girl. The kids have unusual names and you are trying to figure out what each kid's name is.

You will hear a name. Rate how male or female you think it is.

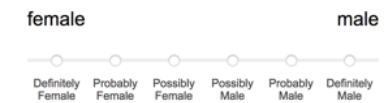
Please make sure your headphones are in and your sound is on.

Press next to begin.

Next >

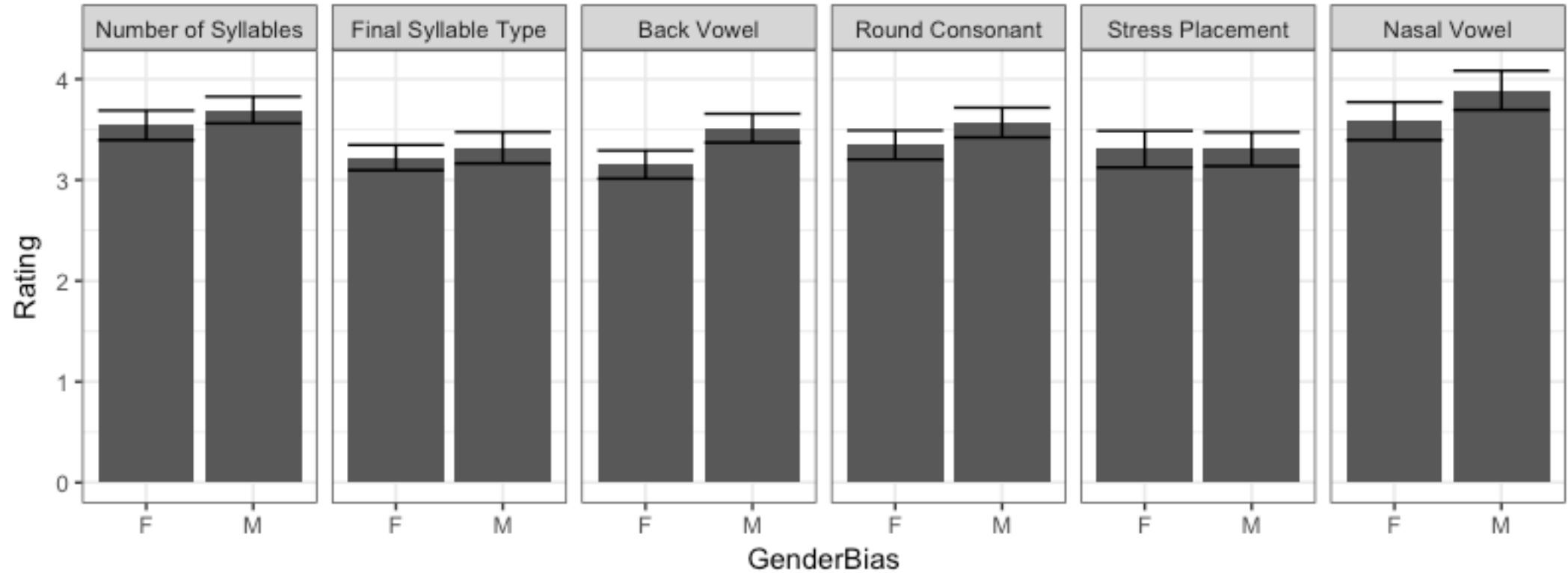


Is this name male or female?



Next

# Experiment – Results





# Experiment – Linear Regression Model

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## Response Variable – Rating (1-6)

### Fixed Effects

- Gender Bias (M or F)
- Phonological Factor (6)
- Language (French or English)
- Interactions
  - Gender Bias \* Phonological Factor
  - Gender Bias \* Language

### Random Effects

- Stimulus Pair
- Participant

## Results

- Only gender bias came out as significant
- Participants rated female-biased items as more female than male-biased items
- There was no overall effect on ratings of phonological factor or language
- There was no effect on rating patterns of phonological factor or language

# Experiment – Discussion

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## **Participants have internalized and are able to make use of phonological factors**

- Lack of differences between languages suggests that these are internalized at a more abstract level
- Lack of difference between factors may be due to lack of power
- Having more items per factor could increase power and identify differences

# Conclusion

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## **Corpus Analysis**

- Verified the trends previously studied in English
- French also displays most of these trends
- Logistic regressions indicate that factor strength varies between languages

## **Experiment**

- Shows that participants have internalized and actively use phonological patterns
- Rating patterns don't vary by speaker language or phonological factor

## **Shortcomings**

- Comparing two related languages
- Low number of stimulus items per phonological factor in experiment

# Directions for Future Research

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## **Corpus Analysis**

- Genetically unrelated languages
- Regional variation
- Historical variation

## **Experiment**

- Increase the number of stimulus items per phonological factor
- Extend the research to monolingual French speakers
- Additional languages
  - New factors
  - New language groups

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- **French Materials:** Isabelle Ladouceur-Séguin
- **Experiment Testing:** Colleen Dulle, Anthony Fredette, Brian Sullivan, Simon Whedbee
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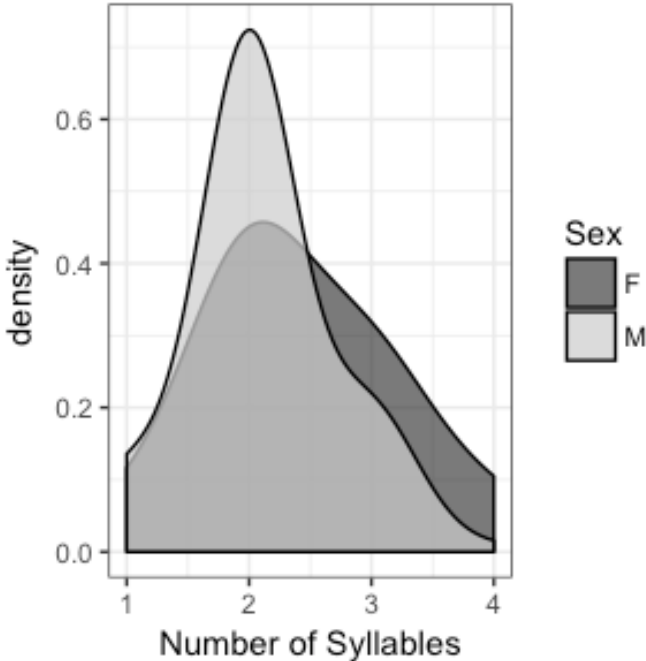
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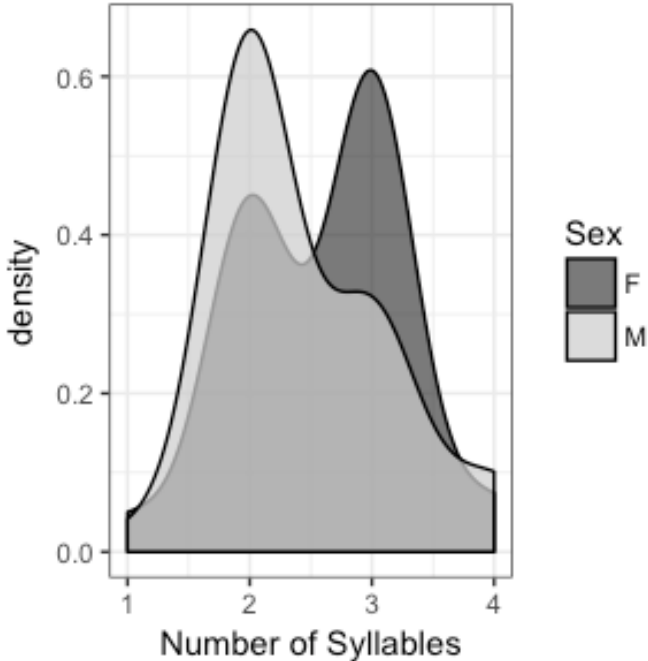
# Number of Syllables

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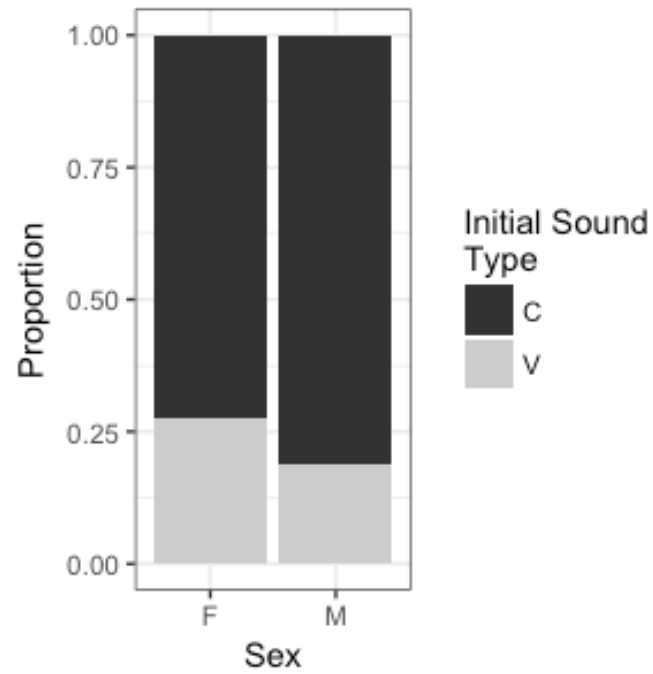
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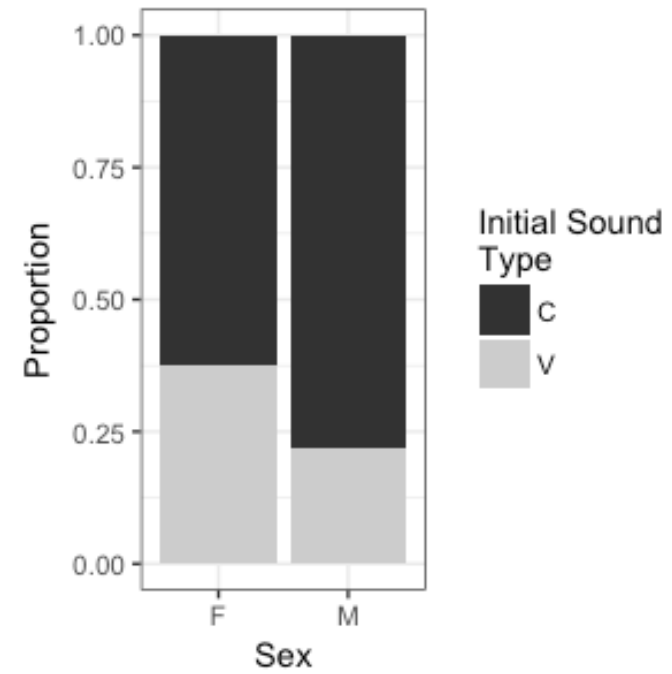
# Initial Sound Type

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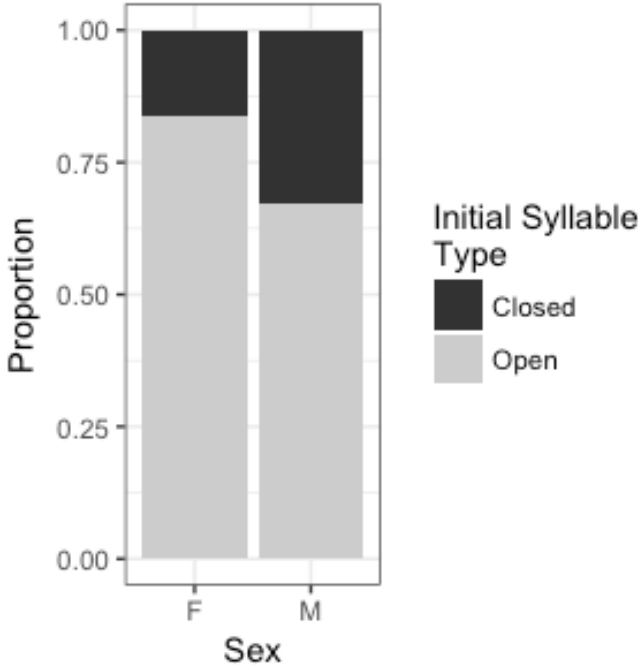
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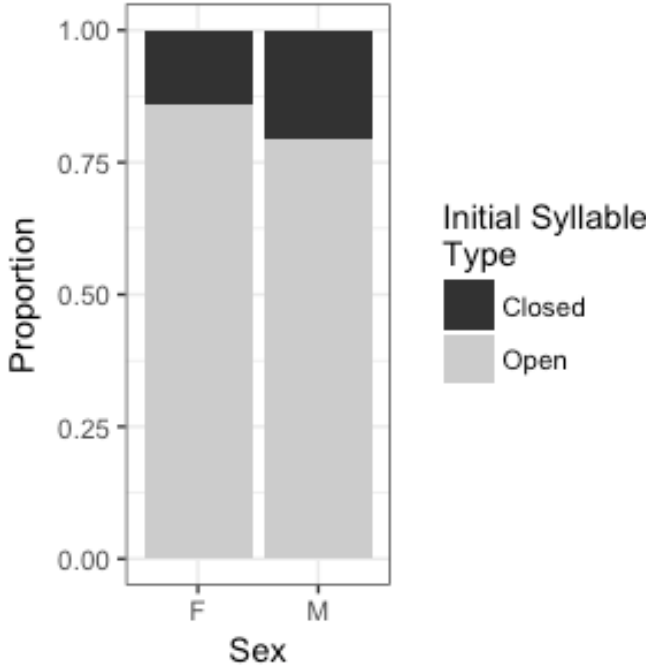
# Initial Syllable Type

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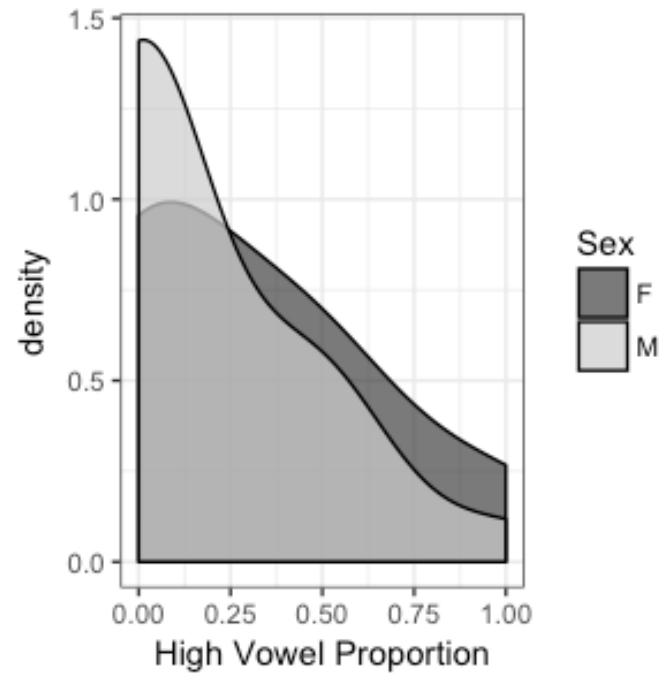
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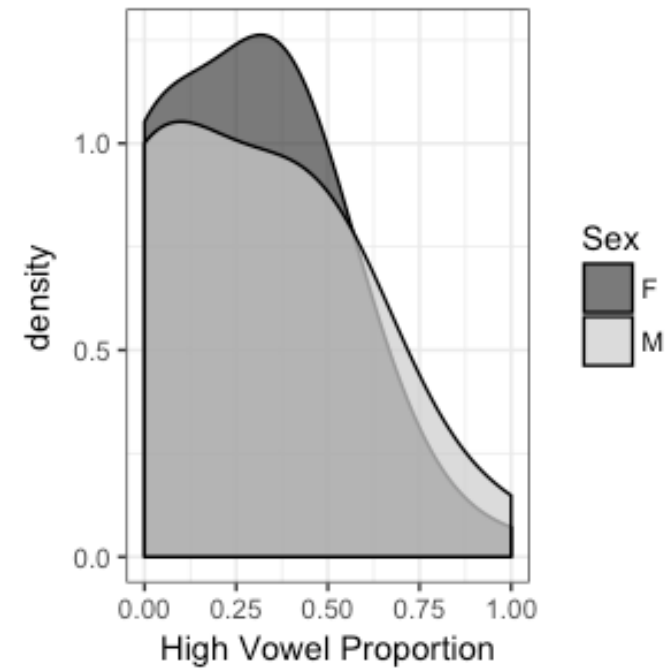
# High Vowel Proportion

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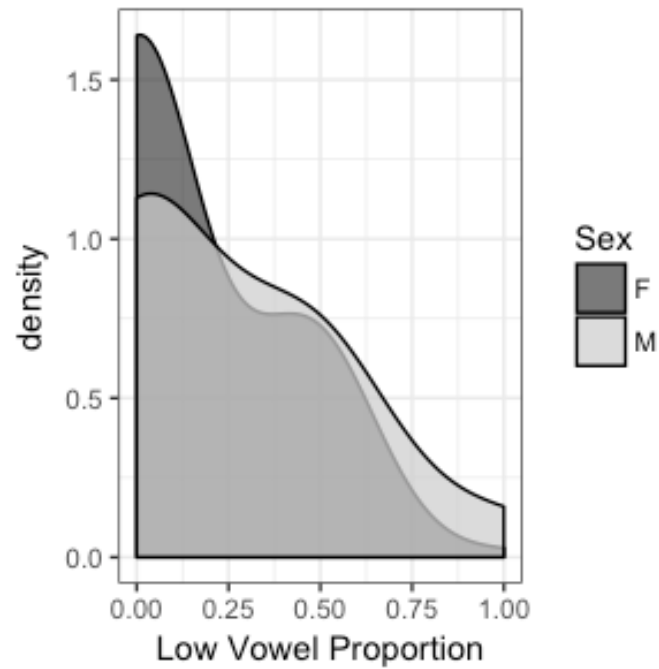
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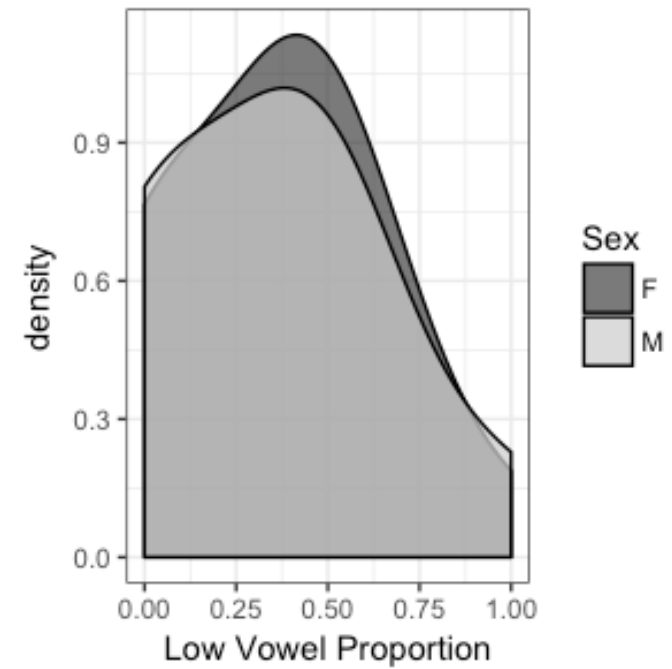
# Low Vowel Proportion

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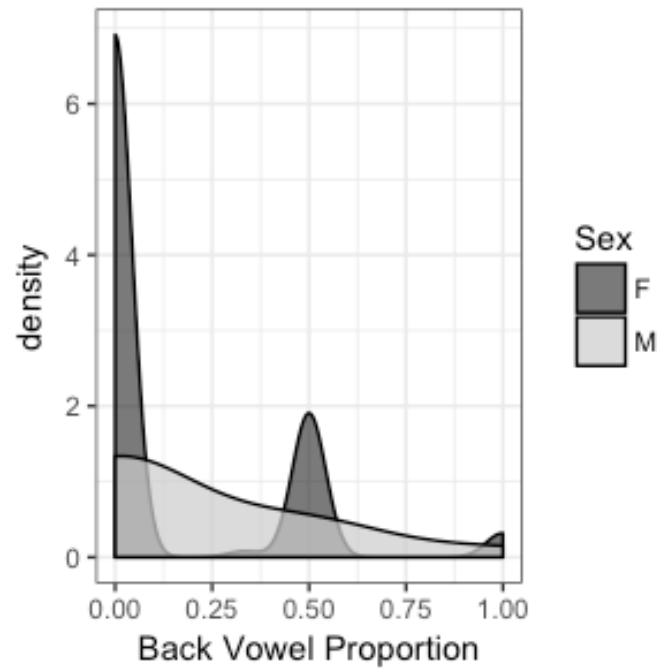
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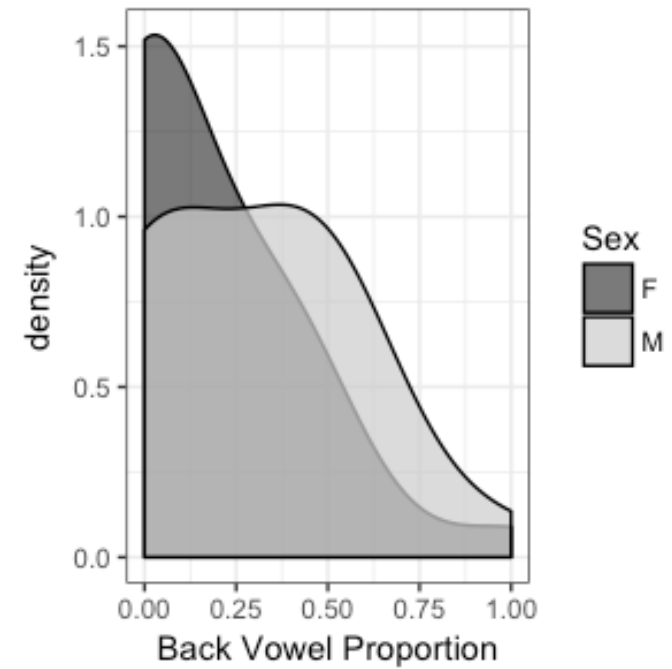
# Back Vowel Proportion

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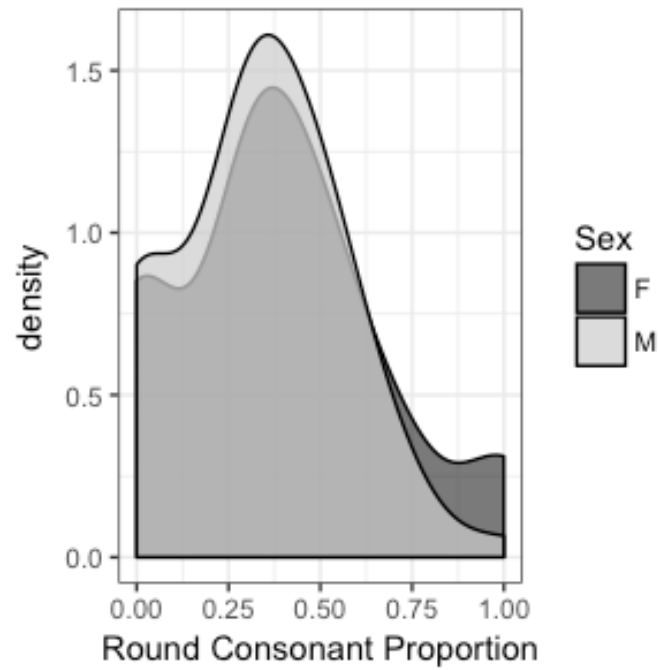
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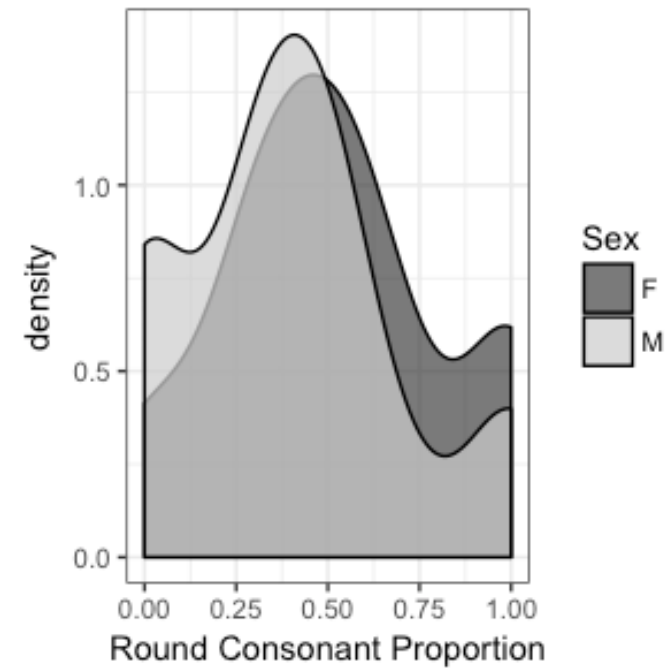
# Round Consonant Proportion

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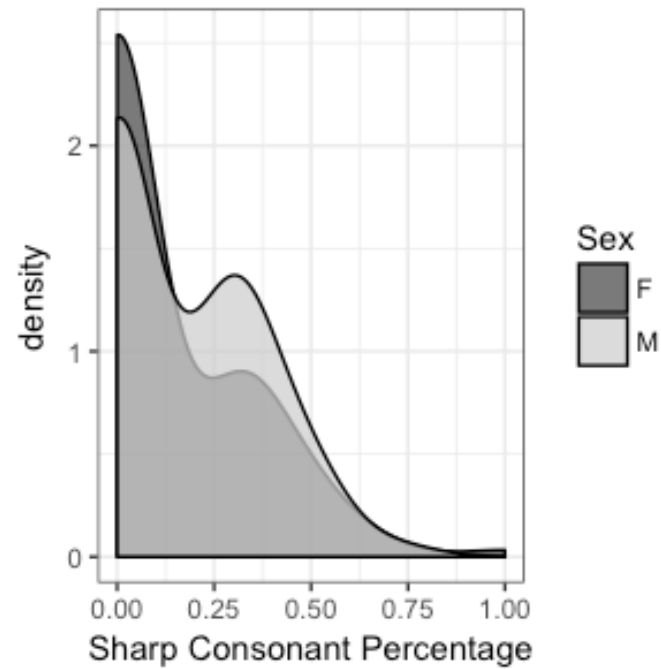




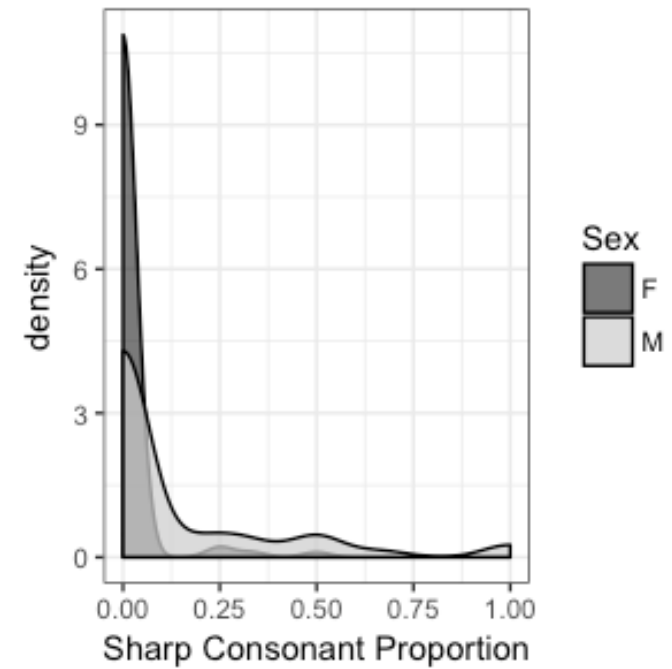
# Sharp Consonant Proportion

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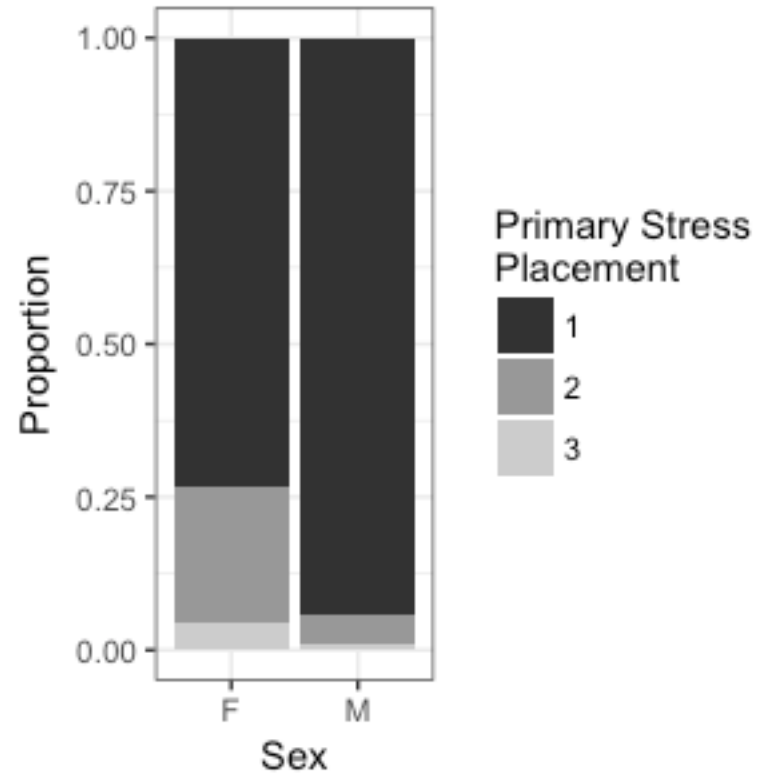


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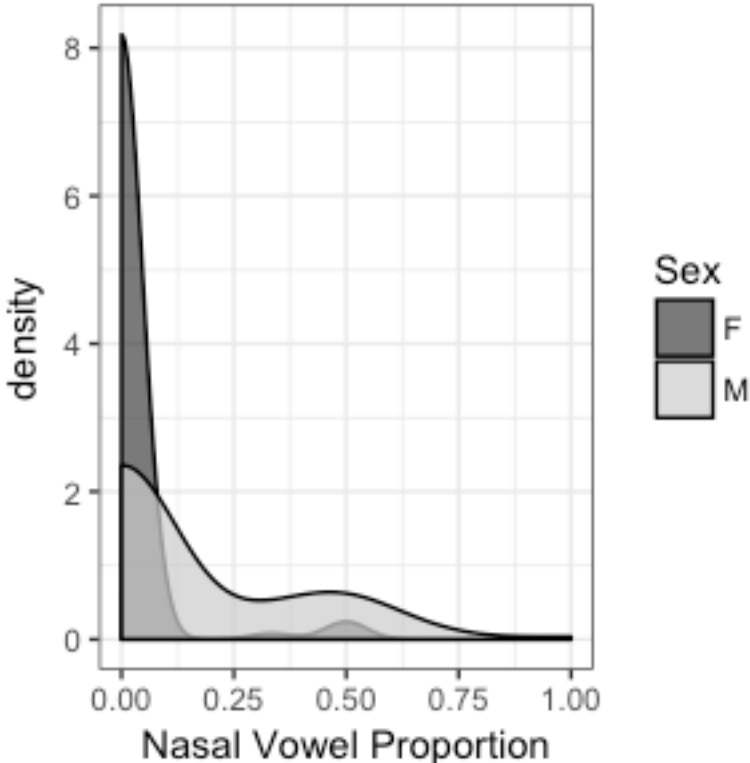
# Stress Placement (English)

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# Nasal Vowel Proportion (French)

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# Experiment – Results

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Factor	English				French			
	Female		Male		Female		Male	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>Number of Syllables</i>	3.50	1.32	3.50	1.28	3.58	1.18	3.89	0.92
<i>Final Syllable Type</i>	3.31	1.12	3.67	1.39	3.14	1.02	2.97	1.16
<i>Presence of a Back Vowel</i>	3.00	1.17	3.31	1.26	3.31	1.19	3.72	1.14
<i>Presence of a Round Consonant</i>	3.06	1.35	3.03	1.25	3.64	1.02	4.11	1.01
<i>Stress Placement</i>	3.31	1.09	3.31	1.01				
<i>Presence of a Nasal Vowel</i>					3.58	1.13	3.89	1.17

# Suggested French Tendencies

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	<b>Tendency</b>	<b>Examples</b>	<b>Sources</b>
<i>Length</i>	Most monosyllabic names are male	Jean Geneviève	Cutler et al. 1990
<i>Stress/ Syllable Structure</i>	Male names begin with a closed syllable more often than female names	<u>A</u> n.toine <u>A</u> .nna.belle	Cutler et al. 1990