1. INTRODUCTION
Can speakers acquire subtle phonological patterns in the lexicon?
- Not all patterns learned are in the lexicon/input
- Not all patterns in the lexicon/input are learned
  - E.g., Unnatural patterns → harder to learn [1]
- What if such patterns contradict typology?
  - E.g. 1: Initial-σ faithfulness in English laryngeal alternations [2]: life ↔ lives
  - Monosyllables > polysyllables in the lexicon but monosyllables > polysyllables in wug test
  - E.g. 2: Sonority sequencing in Polish (initial clusters) [3]
  - Sonority plateaux > sonority rises in the lexicon but sonority rises favoured by children
  - This study: weight effects on antepenultimate stress in Portuguese:
    - negative in the lexicon, positive in speakers’ grammars

2. PORTUGUESE STRESS
- Trisyllabic window
- Categorical weight: H = heavy, L = light
  - Traditionally: XH[L]v4 else XX[L]v4
- Final (U)
- Penultimate (PU)
- Antepenultimate (APU)
  - patético ‘pathetic’
  - Weight effects are constrained to the αw4
  - But this does not capture sub-patterns [4]
    - All syllables in the domain are affected
    - Some negative effects, contra weight typology

3. QUESTIONS
1. How do speakers generalize weight effects?
2. How do they deal with a contradictory pattern?

4. LEXICAL BASELINE
  - Notation: H3, H2, H1, L1, L0, V4
  - H1 has a negative effect in the entire lexicon
    - But is H3 negative in the input?
      1. Examine posterior distribution of H3
        - ii. All values in log-odds
        - All three methods confirm H3 > 0
          - # Posterior distribution H3 > 0 (plot)
        - # All three methods confirm H3 < 0
          - How about speakers’ grammars?

5. METHODS
  - Auditory forced-judgment task (two versions)
    - Native speakers of Br. Portuguese (n = 27, 32)
    - Nonce words (n = 240) with + weight profiles
  - Weight profiles: HLL, LHL, LLL; LLH (control)
  - E.g.: H3 → APU vs. PU stress in HLL vs. LLL
  - Bayesian (hierarchical) logistic regression (Stan)

6. ANALYSIS AND RESULTS
  - Experimental results: Version A shown (n = 27). Posterior distributions + 50% and 95% HDI
    - H2, H3, H1: all positively affect stress
      - H1 (control) not shown in plot
      - # Posterior distribution H3 > 0 (plot)
      - All values in log-odds
      - Positive values → preference for APU stress
      - H2 > H3: LHL >> LHL & HLL > HLL
      - Results replicated in Version B (n = 32)
      - Gradient weight & positive H3

What’s an “equivalent” MaxEnt model?
- C emulates the intercept in the models above (e.g., C = (FTBIN, ALIGN(Ft, R), NONFINALITY));
  - provides grammatical interpretation for positional bias represented by intercept
- # Weights maximize observed probability (averaged across words within weight profiles)
  - Mean observed p(HLL|HLL) = Predicted p(HLL|HLL)
    - s = 0.15
      - w = 0.70
      - w = 0.49
      - w = 0.24

- Weights are point estimates, not posterior distributions
- Standard MaxEnt implementation not hierarchical (i.e., no by-speaker/-word variation)

7. CONCLUSION
- Speakers generalize weight gradience: LHL: U > PU |
  - LHL: PU > APU |
  - HLL: APU > PU
- They do not, however, generalize H3 effects in the lexicon: rather, they repair such effects
- Speakers’ grammars are generalizing the expected effects given that Portuguese is weight-sensitive
  - LLL > HLL ➔ HLL > LLL

Lexicon Grammar
- Crucially, the weight gradience in question is **posteriorly defined**
  - One way to capture this in a probabilistic grammar: positional WSPw4; H3 < H2 < H1

REFERENCES