

# Prosody vs. segments in laboratory learning of category-specific phonology

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## I. Overview

- (1) **Category-specific phonology** → Nouns, verbs can differ
- (2) Cross-linguistic **asymmetries** (see Smith 2011 for a review)
  - (a) Privilege: **N** → less neutralization, more marked
  - (b) Phenomena: **prosodic** (stress, tone), not segmental
- (3) Where do these asymmetries **come from**?
  - (a) Are they innate?
  - (b) Do they arise via acquisition, transmission?
- (4) Ultimate research question:  
Can the **laboratory-learning** paradigm provide evidence for a learning bias?
- (5) **Goal of this poster:**
  - (a) **Present initial findings**
  - (b) **Solicit feedback on methodology, interpretation**

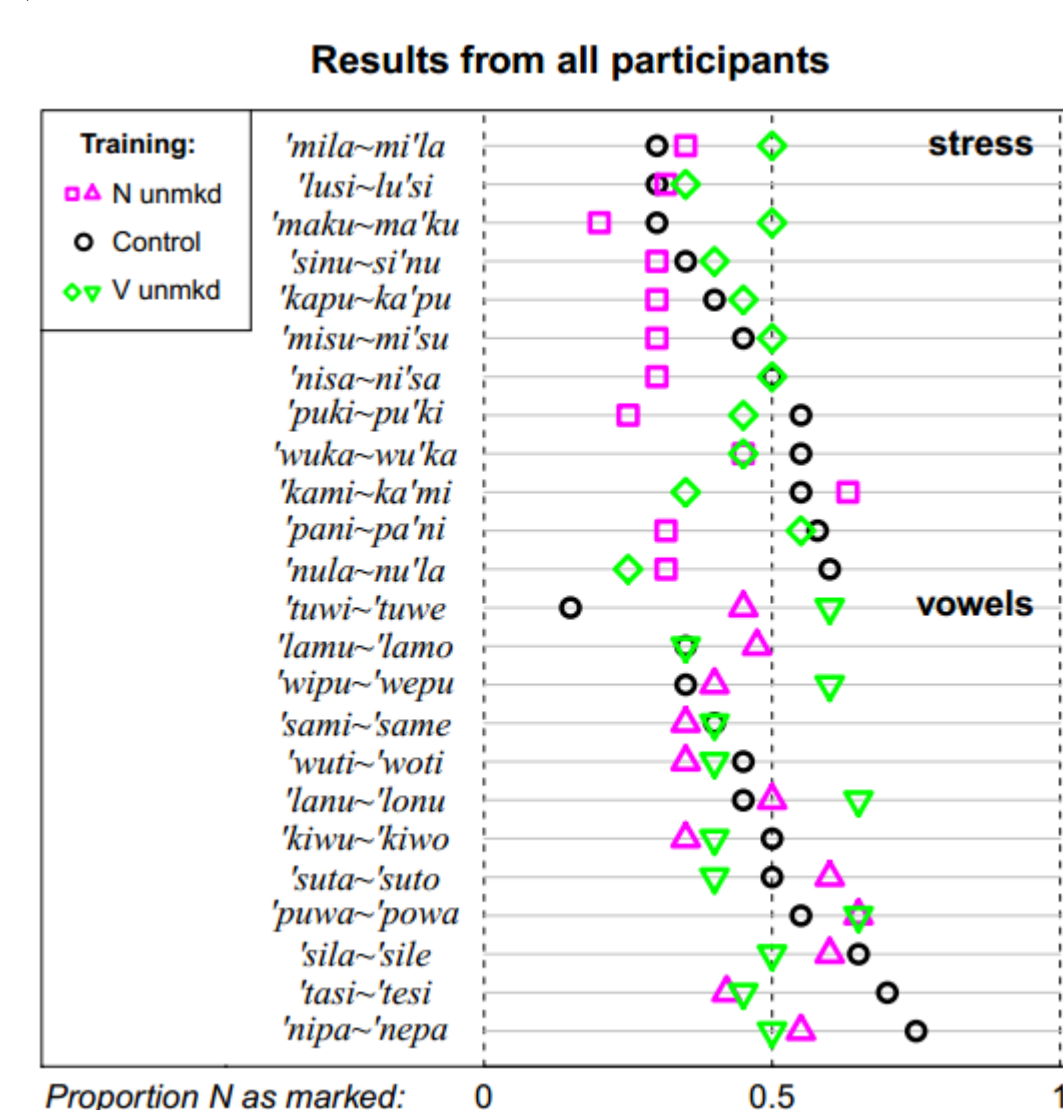
## II. Methodology

- (6) Web experiment using Amazon Mechanical Turk
- (7) Structure of stimulus words (auditory presentation):
  - (a) CVCV; C from [ p t k n m s l w ]
  - (b) Vowels from [ i e a o u ] | *or restricted to [ i a u ]*
  - (c) Stress (x .), (. x) | *or restricted to (x .)*
- (8) Training phase: 3 conditions, 20 participants each
  - (a) **Control**: N, V unrestricted  
**NstrVseg**: All N are (x .); all V have only [ i a u ]  
**NsegVstr**: All N have only [ i a u ]; all V are (x .)
  - (b) Training words presented in blocks of 24 N, 24 V, and with Eng “translations”; audio 3x  
 Blocks presented 2x each; order counterbalanced
- (9) Vocabulary quiz — participants knew to expect this
  - (a) Included to encourage attention to N/V meanings
  - (b) 8 items: audio with choice of two “translations”
- (10) Test phase — participants did *not* know to expect this
  - (a) Minimally different word pair presented
    - **Stress trial**: (x .) vs. (. x) — all vowels [ i a u ]
    - **Vowel trial**: [ i e a o u ] vs. [ i a u ] — all stress (x .)
  - (b) Task: Select *the noun* or *the verb*
  - (c) Predictions: If trained on **N restriction**, should pick **unmarked form for N** (likewise for V)
    - Control condition should provide a baseline

## III. Results

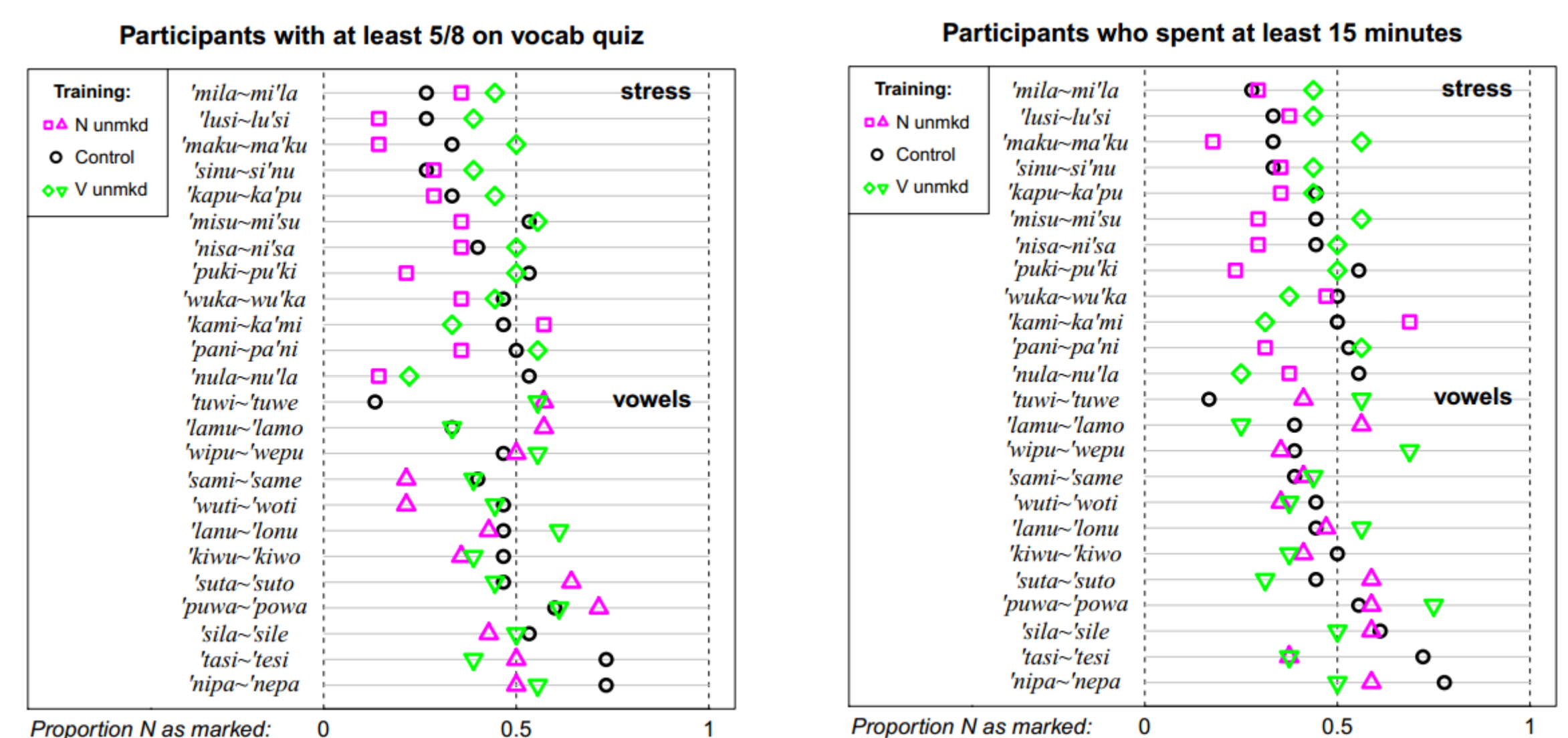
- (11) How to read the following graphs:
  - (a) If training on N restriction leads to choice of N as unmarked option, the **pink** symbols should lie to the left of the **green** symbols
  - (b) If the control condition gives a baseline, the black symbols should fall in the **middle**

- (12) Overall results



- Marginal effect for stress  
9/12 N<V |  $p=0.07300$
- No effect for vowels  
7/12 N<V |  $p=0.38721$
- Control condition does not look much like a baseline!

- (13) What happens if certain participants are excluded?



- Stress: 11/12 |  $p=0.00317$
- Vowels: 7/12 |  $p=0.38721$
- Stress: 9/12 |  $p=0.07299$
- Vowels: 6/12 |  $p=0.61279$

- (a) Vocab quiz might help diagnose which participants were paying more attention during word learning
- (b) Excluding the fastest participants not useful?

## IV. Discussion

- (14) Stronger effect for stress than for vowels
  - (a) Methodological, or meaningful?
  - (b) Related to N=trochee bias for English? (Kelly 1992)
- (15) If control condition not a real baseline, how to measure effect size for N vs. V?
- (16) What is the right way to interpret lab-learning results, given the nature of the training set? (Modifications?)

## Acknowledgments

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