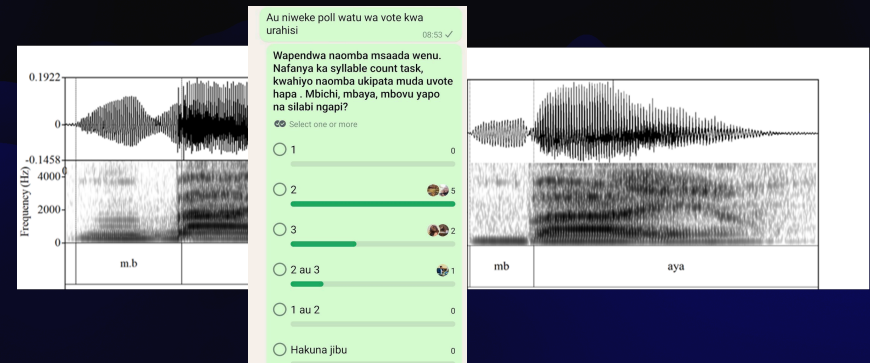


The crux of the puzzle

- /N+b/ and /m+b/ are both possible sequences that can be assembled with real morphology
- So....are they the same?
 - Phonetically?
 - Phonologically?

Punchline: no, they are not the same



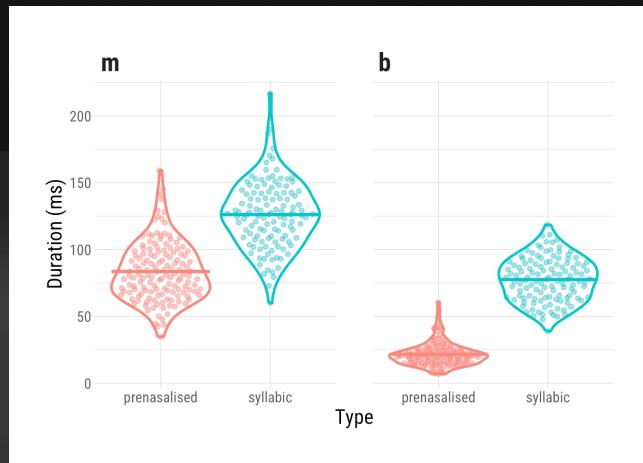
Duration differences

Data set

- Audio, one speaker, durational analysis in Praat
- 'prenasalized' mb: 144 tokens
- 'syllabic' m.b: 122 tokens
- Tokens categorized ahead of time into two groups
prenasalized mb (cl.9), or
syllabic m.b (cl.1/3)

m.b≠mb

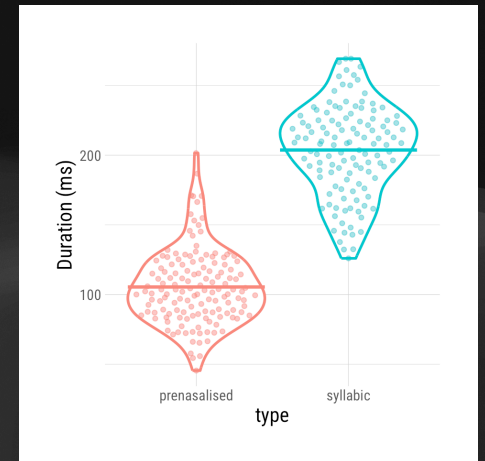
- T-test significant



Total duration

Also not the same

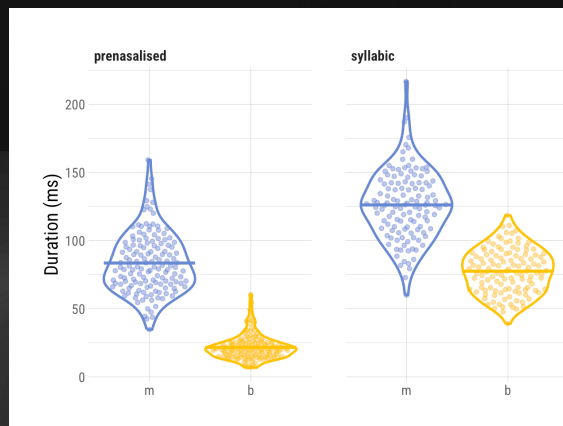
- Syllabic m.b sequences are longer overall
- Pre-nasalized $^m b$ are shorter



Composition

How much m/b?

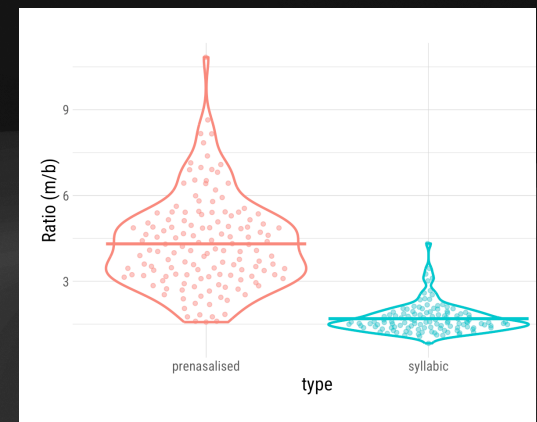
- More m than b in both conditions
- Duration of m significantly different
- Duration of b interval also significantly different



M:B ratio

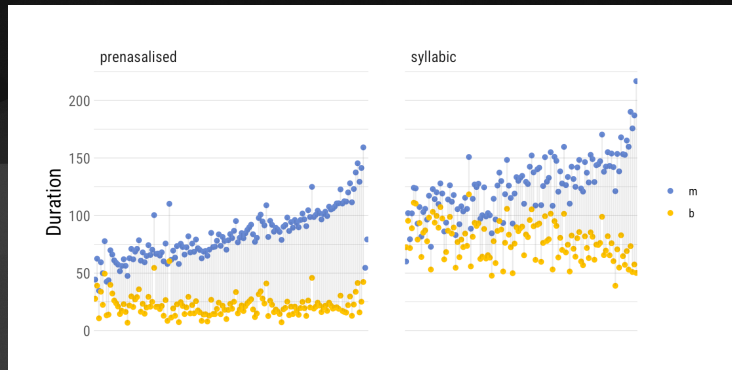
Is also different

- prenasalised: 4.31
- syllabic: 1.69
- 'Prenasalized' is mostly m (in some tokens, anyway)
- 'Syllabic' m is shorter than b (it has more b than m)



Plotted as intervals

Each token is 1 line

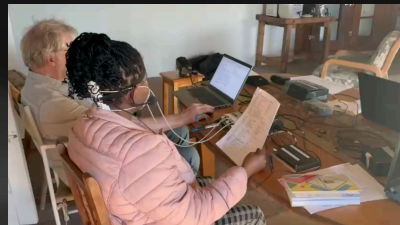


Aerodynamics

Aeromask

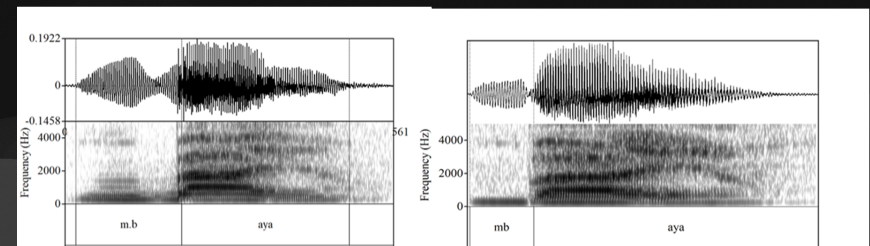
Illustration

- Apparatus to record simultaneous nasal and oral airflow together with audio
- Auto-calibration for ambient pressure
- Acoustically transparent mask
- Software: work in progress



Preliminary findings

Difference in laryngeal action evident



'Syllabic m.b'

'Prenasalized mb'

Implosive [b]!

Historical ramifications

Class 9 is the bayaest

- Swahili is not *standardly* diagnosed as having a contrast between plosive /b/ and implosive /ɓ/
- But, the 'b' in /m-b/ surfaces as implosive, and the 'b' in cl.9 /N-b/ does not
- Class 9 is known for laryngeal perturbations
 - Xhosa ex: -**th**etha '(to) talk' ~ in-**t**etho '(a) talk'
 - Class 9 /N-/: de-aspirates stops, hardens fricatives and /l/, nasalizes clicks, and *purportedly de-implosivizes /b/*
- Class 9 change /b/—>[b] is shared with Nguni/Southern Bantu

Asanteni sana