

BEATRHYMING PROBES THE NATURE OF THE INTERFACE BETWEEN PHONOLOGY AND BEATBOXING

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1 BEATBOXING AND SPEECH

Beatboxing is a vocal activity that helps us understand speech.

ABOUT BEATBOXING

Beatboxing history: TyTe & Defenicial 2005. Domain specificity: Pinker & Jackendoff 2005.

Beatboxing is a form of vocal music, characterized by the use of sounds that emulate percussion and synthesized music.

As a tool for studying the relationship between speech and other behaviors, beatboxing is:

Convenient

Beatboxing uses the vocal tract, which we understand fairly well.

Useful

Beatboxing sounds are organized and coordinated, but without meaning.

Analyzing the extent to which speech representations are related to other vocal tract representations offers new information about how speech representations are situated in cognition.

We can learn more about speech by studying the phonetics and phonotactics of beatboxing.

2 WHAT HAPPENS WHEN BEATBOXING AND SPEECH CO-OCCUR?

Beatrhyiming is created by mixing speech sounds and beatboxing sounds within an utterance.

■ speech
■ beatboxing

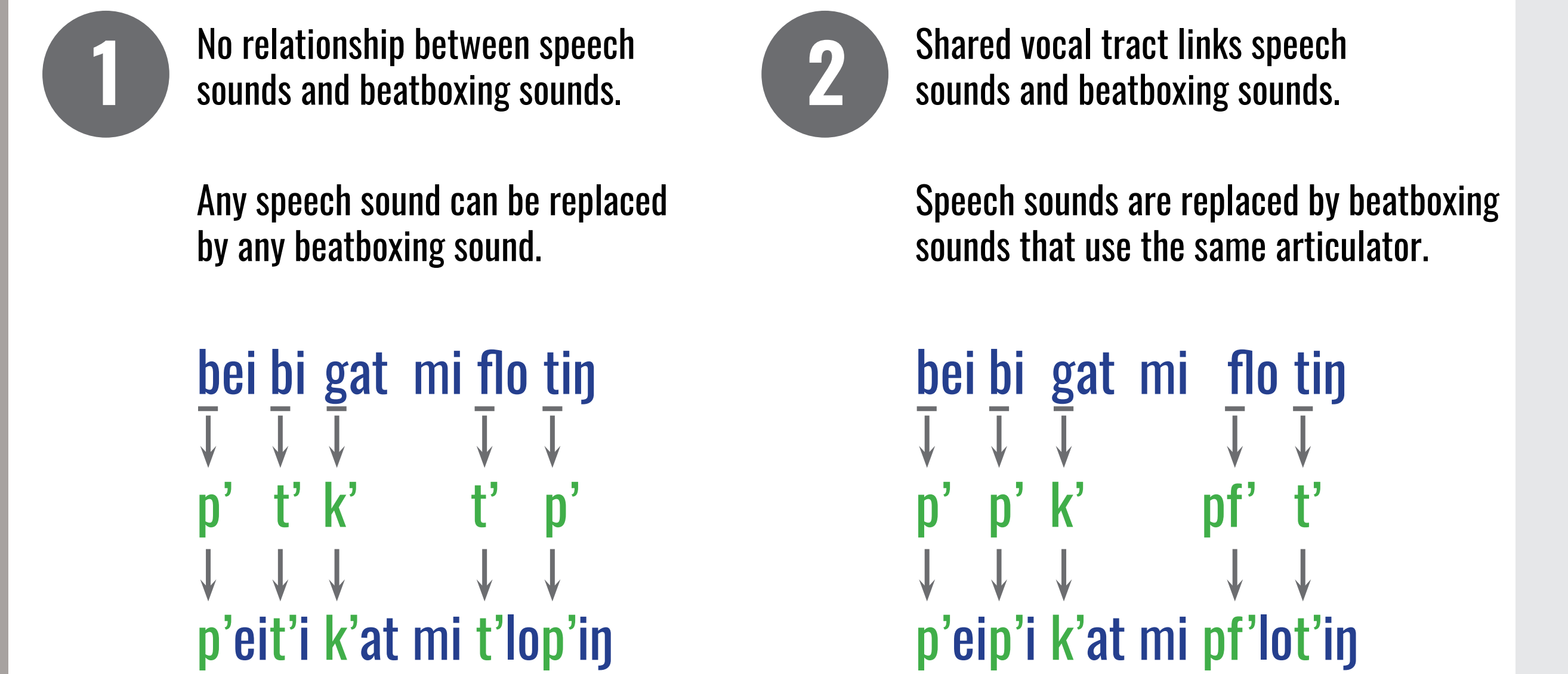
BEATBOXING SOUNDS

Kick Drum	p'	bilabial ejective stop
Rimshot	k'	velar ejective stop
PF Snare	pf'	labiodental ejective affricate
Hi-Hat	t'	alveolar ejective stop

BEATRHYMING DATA

Phoneme level transcription of the beathyme song "Dopamine", written and performed by Kaila Mullady.

BEATRHYMING HYPOTHESES AND PREDICTIONS



Beatboxing sounds: Proctor et. al. 2013; Blaylock et. al. 2017; Patil et. al. 2017. Beatrhyiming data: Mullady 2017.

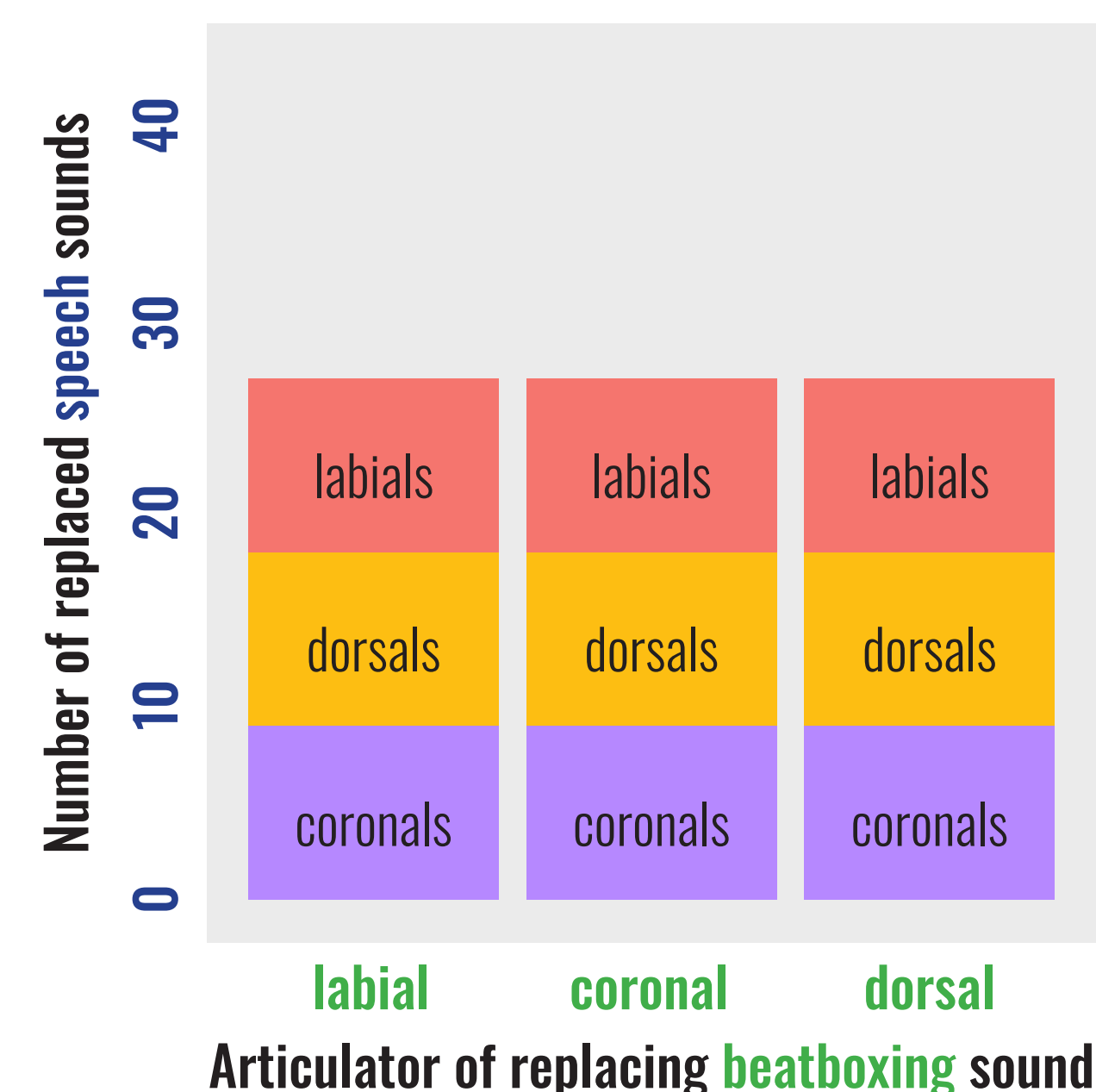
Do beathymers use beatboxing sounds that correspond to the articulations of speech sounds?

3 ANALYSIS: COUNT THE REPLACEMENTS

The analysis supports an articulator-specific combination of both hypotheses.

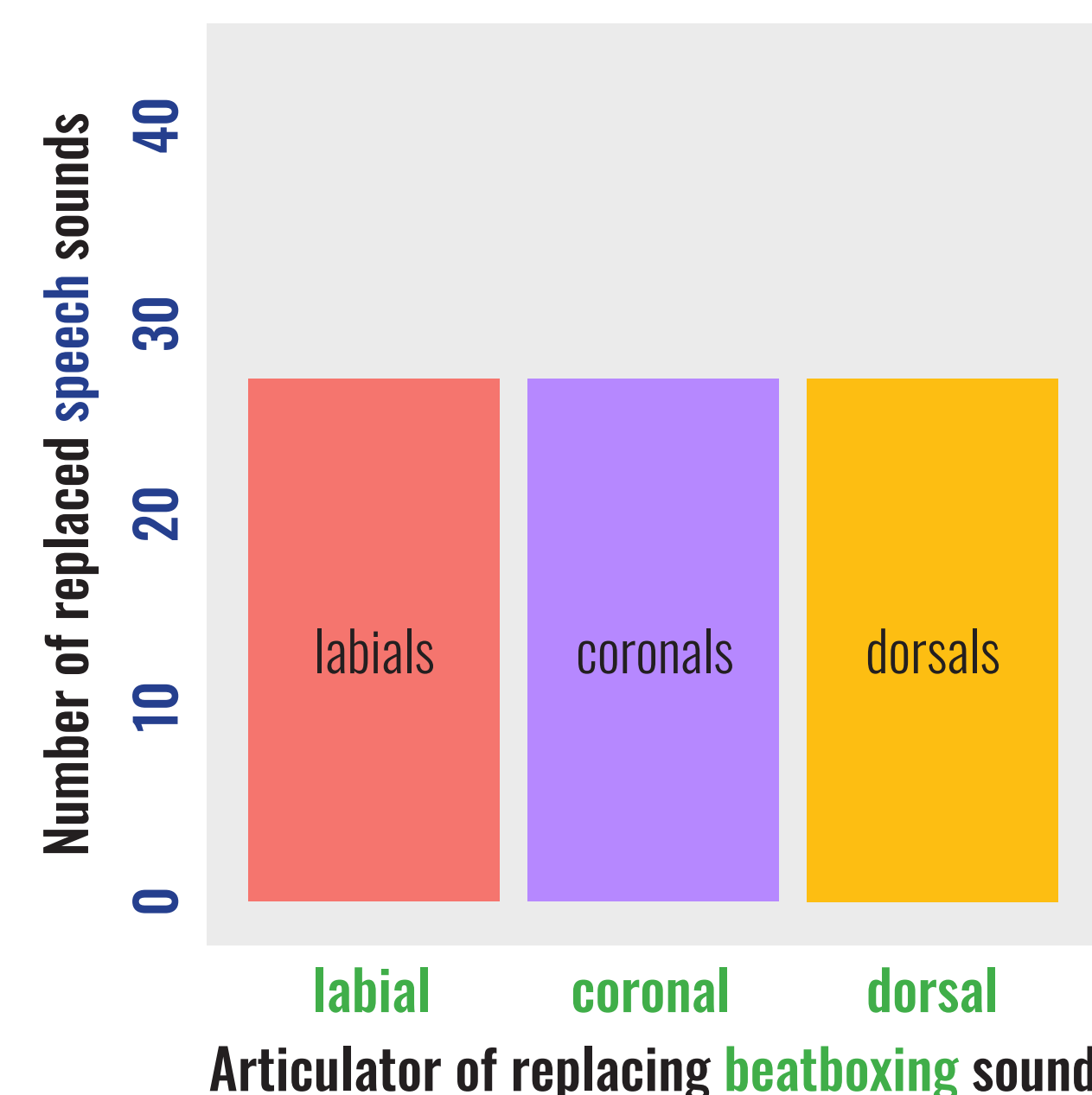
HYPOTHESIS 1 (SCHEMATIC)

Speech sounds are replaced indiscriminately.



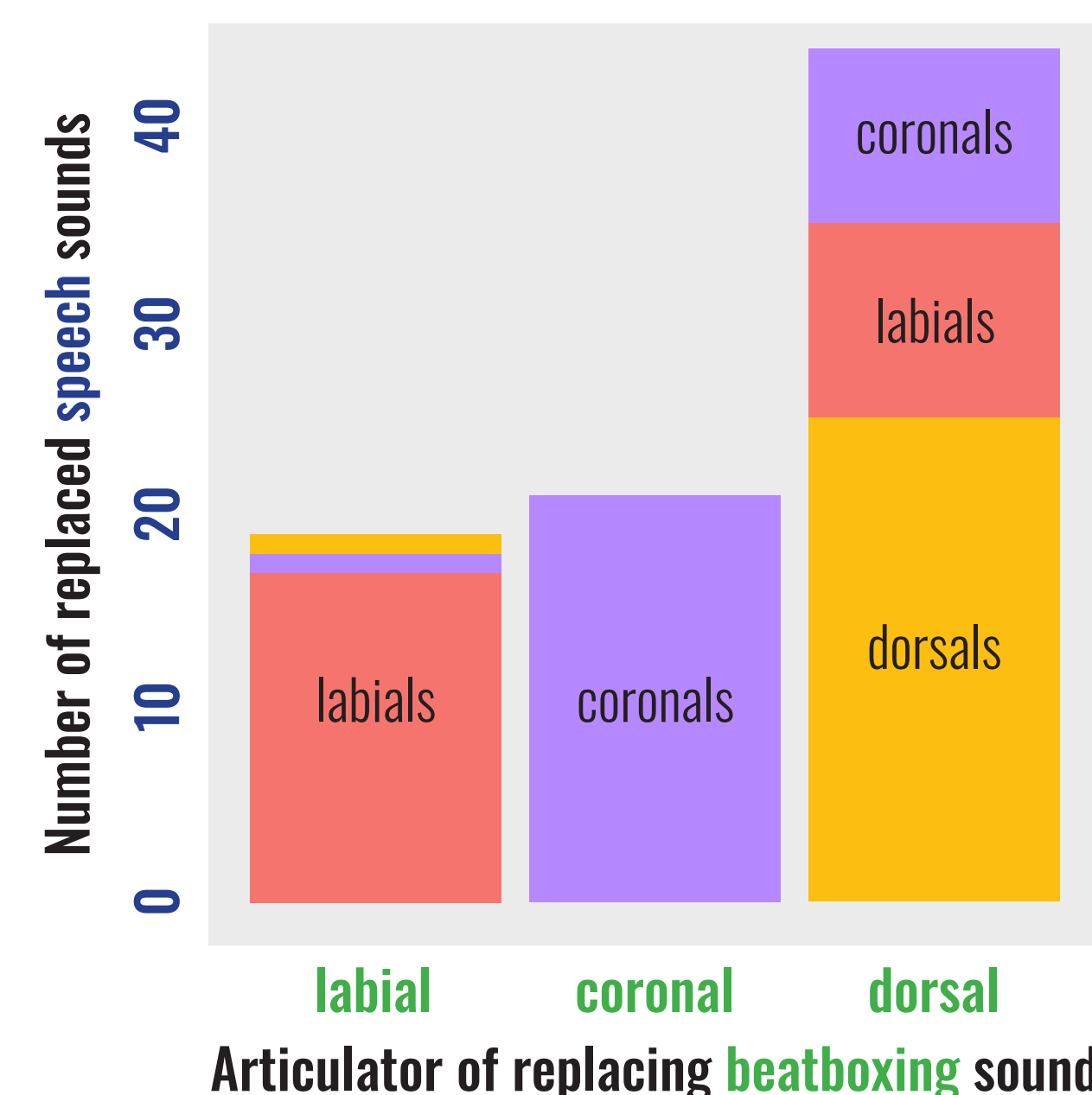
HYPOTHESIS 2 (SCHEMATIC)

Speech articulator determines replacement.



ACTUAL FINDING

A bit of both!



Speech articulators: ■ tongue tip ■ tongue body ■ lips

Beatboxing labials and coronals replace speech labials and coronals. Beatboxing dorsals replace anything.

4 CONCLUSION

Future work on beatrhyiming may provide further insights about speech and vocal behaviors in general.

IMPLICATIONS ABOUT SPEECH

Beathymers develop a relationship between speech sounds and beatboxing sounds which allows intelligible replacements of speech sounds by beatboxing sounds.

FUTURE WORK

To get a better understanding of the unique behavior of dorsals in beatrhyiming, we intend to:

- Assess whether this behavior is song-specific by looking at more beatrhyiming performances
- Incorporate rhythmic and metrical information into the analysis to see if certain sounds are licensed exclusively in certain metrical positions or rhythmic patterns
- Analyze other, non-replacement interactions (e.g. interruptions) in beatrhyiming

REFERENCES

Visit <https://reedblaylock.com> for full references.

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