Disambiguating isiXhosa noun classes with phonotactic c(l)ues

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Introduction

- Bantu languages are famous their complex noun class systems

- **Q:** How do speakers learn noun class membership?

- **Hypothesis:** Root phonotactics can help clue speakers in

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Xhosa

- Bantu (Nguni)

- South Africa's Eastern Cape and surroundings

- Approximately 8.2 million speakers

Noun classes in Xhosa

Singular	Plural	Class	Gloss
um-ntu	aba-ntu	1/2	person
u-mama	oo-mama	1a/2a	mama
um-lambo	imi-lambo	3/4	river
i-gama	ama-gama	5/6	name
isi-tya	izi-tya	7/8	dish
i-nkomo	ii-nkomo	9/10	cow
ulu-su		11	stomach
ubu-ntu		14	humanity
uku-tya		15	food

Homophonous prefixes

- With long (2+ syllable) nouns, classes 5 and 9 can both be [i-]:

i-khaya	ama-khaya	5/6	'home'
i-gama	ama-gama	5/6	'name'
i-moto	ii-moto	9/10	'car'
i-nkomo	ii-nkomo	9/10	'cow'

Disambiguating classes 5 and 9

- Short (1 syllable) nouns:

ili-fu	ama-fu	5/6	'cloud'
ili-tye	ama-tye	5/6	'stone'
i-nja	izi-nja	9/10	'dog'
i-nto	izi-nto	9/10	'thing'

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The history of classes 5 and 9

- Class 5: *li > i(li)
- Class 9: *ni > i(n) (Doke 1954)

- Class 9 nouns often retain the nasal:
  - i-nja 'dog', i-nkomo 'cow', etc
  - But not always: i-cuwa 'salt'
                 also ii-lwimi 'languages'

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Post-nasal alternations

- When the class 9 adjectival prefix (en-) is added to roots:
  - de-aspiration (-khulu 'big' > en-kulu 'cl.9-big')
  - hardening (-hle 'good' > en-tle 'cl.9-good')

- This doesn't happen with class 5
  - ∴ unaspirated and 'hardened' initial Cs may signal class 9

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Historical change leads to synchronic phonotactics

- *-kaya 'home'
  - i-n-kaya → *i-kaya
  - i-li-khaya → i-khaya (5)

If -kaya takes the class 9 prefix with a nasal, deaspiration occurs and the modern version surfaces as -kaya.

If -kaya takes the class 5 prefix with no nasal, deaspiration doesn't occur and the modern version surfaces as -khaya

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Historical change leads to synchronic phonotactics

If -komo takes the class 9 prefix with a nasal, historical aspiration fails to apply and the modern version surfaces as -komo

If -komo takes the class 5 prefix with no nasal, historical aspiration applies and the modern version surfaces as -khomo

- *-komo 'cow'
  - i-n-komo → i-nkomo (9)
  - i-li-khomo → *i-khomo

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Historical change leads to synchronic phonotactics

- Class 9 nouns historically changed initial aspirated and non-hardened Cs

- Class 5 nouns didn't go through this process and so may surface with aspirated and non-hardened Cs

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The prediction

- Ambiguous i-C_1VC_2V nouns:

  - If C_1 is a sound that would *result from* a post-nasal consonant change (i.e. unaspirated or hard), it's likely to be class 9

  - If C_1 is a sound that would *undergo* a post-nasal consonant change (i.e. aspirated or non-hard), it's likely to be class 5

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Testing the prediction

- Wug task (Berko 1958)
  - Nonce items don't have any semantic clues to noun class
  - So, nonce words offer a way to test whether speakers are aware of the phonotactic clues to noun class

THIS IS A WUG

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2. Our experiment

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Stimuli

- 20 nonce nouns
  - 10 with shape i-CV   (short)
  - 10 with shape i-CVCV   (long)

- First C is either:
  - An undergoer of post-nasal changes, or
  - A result of post-nasal changes
  - Five of each, for each noun shape (=20 total)

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Method: on each trial…

singular (isinye)	plural (isininzi)
ikhelu ⟶	_____

- Shown a singular nonce noun
- Speakers read the singular form, then produced a plural form

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Method: expectations

- IF C1 is a post-nasal change undergoer (fricative, aspirate, implosive, /l/), THEN speakers should treat the word as cl. 5, SO they will give plurals with ama- (cl. 6)

- IF C1 is the result of a post-nasal change (voiced, unaspirated, nasal), THEN speakers would treat the word as cl. 9 SO they will give plurals with ii(N)-/izi(N)- (cl. 10)
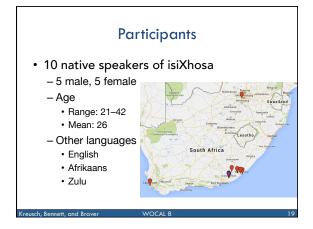
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Method

- Stimuli presented on a laptop in random order
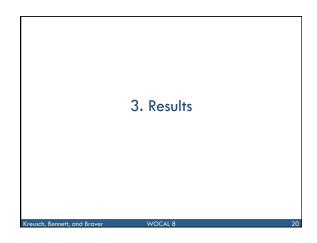
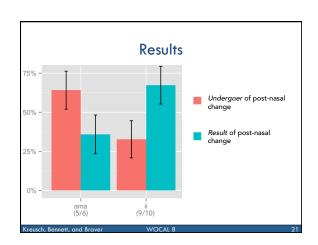- Participants saw 3 real-noun sg/pl examples in the instructions, then did 14 practice items

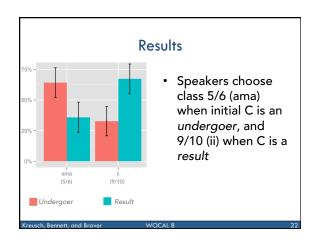Kreusch, Bennett, and Braver — WOCAL 8 — 18

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Participants

- 10 native speakers of isiXhosa
  - 5 male, 5 female
  - Age
    - Range: 21–42
    - Mean: 26
  - Other languages
    - English
    - Afrikaans
    - Zulu

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3. Results

Results

- *Undergoer* of post-nasal change
- *Result* of post-nasal change

Results

- Speakers choose class 5/6 (ama) when initial C is an *undergoer*, and 9/10 (ii) when C is a *result*

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4. Summary and Discussion

Summary

- Speakers have intuitions about nonce words' noun class membership

- The status of initial consonants as *results* or *undergoers* of post-nasal changes influences speakers' decisions

  - *Undergoers* are likely to be class 5/6, while *results* are likely to be class 9/10

Discussion

- Synchronic phonotactics can come from historical patterns

- Speakers make use of phonotactic clues in determining noun class

- Noun classes aren't simply semantic or arbitrary—phonology plays a role

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