Experimentally assessing length-based noun class prefix alternations in isiXhosa

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Xhosa: Language background

- South Africa's Eastern Cape and surroundings
- Approximately 8.2 million speakers
- Bantu (Nguni)

Overview

- Certain Xhosa noun class prefixes alternate based on the length of the following root
- The Question: are these alternations synchronically productive, or just the remnant of historical change?
- We argue that these alternations are part of speakers' synchronic grammars

Length-based allomorphy in class 10

- Class 10:
  - izi(N)- before 1-syllable roots
  - ii(N)- elsewhere

Singular (9)	Plural (10)	Gloss
in-to	izin-to	'thing(s)'
in-dlu	izin-dlu	'house(s)'
in-dlela	iin-dlela	'road(s)'
in-tombi	iin-tombi	'girl(s)'

Length-based allomorphy in class 5

- Class 5:
  - ili- before 1-syllable roots
  - i- elsewhere

Singular (5)	Plural (6)	Gloss
ili-fu	ama-fu	'cloud(s)'
ili-tye	ama-tye	'stone(s)'
i-cephe	ama-cephe	'spoon(s)'
i-dada	ama-dada	'duck(s)'

Length-based allomorphy in class 11

- Class 11:
  - ulu- before 1-syllable roots
  - u- elsewhere

Singular (11)	Plural	Gloss
ulu-vo	izim-vo	'opinion(s)'
ulu-su	izin-tsu	'skin(s)'
u-phondo	iim-pondo	'horn(s)'
u-cango	iin-gcango	'door(s)'

Possible representations

a. Remnant of a historical process; only in the lexicon (learned for each word)

b. Synchronic phonological pattern; active in the grammar (learned as a rule)

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b. Synchronic phonological pattern; active in the grammar (learned as a rule)
   ↳ Speakers *should* apply the pattern to novel words or nonce items

2. Experiment

Experiment design

- Wug task (Berko 1958)
  - Nonce items aren't stored lexically, so any alternation must be a synchronic pattern
  - Singular ↔ Plural
- Block 1: ii(n) *vs.* izi(n) (9/sg → 10/pl)
- Block 2: i- *vs.* ili- (6/pl → 5/sg)

Block 1 (class 9/sg. → 10/pl.): Stimuli

- Singular class 9 → plural class 10
  - 10 monosyllabic roots
  - 10 disyllabic roots
  - 20 filler/distractor items (part of a separate experiment)
    - 10 monosyllabic, 10 disyllabic

Block 1: Task

- Block 1 (9/sg. → 10/pl.)
  - On each trial, speakers see a singular nonce noun with the class 9 prefix i(N)-
  - Speakers produce the plural of that nonce noun, with one of the two class 10 allomorphs, izi(N)- or ii(N)-

Block 1 (9/sg. → 10/pl.): Examples

- into → izinto or iinto
- indlu → izindlu or iindlu
- indlela → izindlela or iindlela
- intombi → izintombi or iintombi

Block 2 (class 6/pl. → 5/sg.): Stimuli

- Plural class 6 → singular class 5
  - 10 monosyllabic roots
  - 10 disyllabic roots
  - distinct from block 1
  - 20 filler/distractor items (part of a separate experiment)
    - 10 monosyllabic, 10 disyllabic
    - distinct from block 1

Block 2: Task

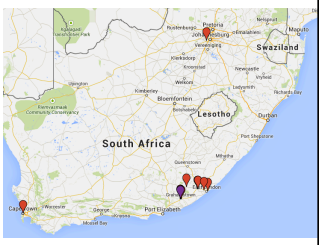
- Block 2 (6/pl. → 5/sg.)
  - On each trial, speakers see a plural nonce noun with the class 6 prefix ama-
  - Speakers produce the singular of that nonce noun, with one of the two class 5 allomorphs, ili- or i-

Block 2 (6/pl. → 5/sg.): Examples

- amafu → ilifu or ifu
- amatye → ilitye or itye
- amacephe → ilicephe or icephe
- amadada → ilidada or idada

Participants

- 10 native speakers of isiXhosa
  - 5 male, 5 female
  - Age
    - Range: 21–42
    - Mean: 26
  - Other languages
    - English (≈all)
    - Afrikaans (2)
    - Zulu (2)
    - Sotho (2)



Data capture

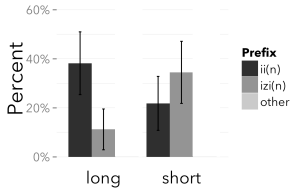
- Stimuli presented on a laptop in random order
- Participants saw 3 real-noun sg/pl examples in the instructions, then did 14 practice items
- Audio recorded, responses coded for class prefix added

Results

- In both blocks, speakers' knowledge of length-based prefix alternations extends to novel words

Results: Block 1 (9/sg. → 10/pl.)

- Speakers were more likely to use izi(N)- with short roots and ii(N) with long roots

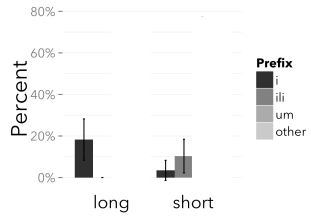


The "other" category

- Real class prefixes, but not izi(n)- or ii(n)-
- Most common: ama- (class 6 pl.)
- Two likely reasons for ama- responses
  - i-CVCV forms may be ambiguous between class 5 i(li)- and class 9 i(n)-
  - Some common nouns in class 9 have class 6 plurals (a 9/sg.~6/pl. paradigm exists)
    ex: in-doda → ama-doda 'man' / 'men'

Results: Block 2 (6/pl. → 5/sg.)

- Speakers were more likely to use ili- with short roots and i- with long roots



um-

- "Other": responses other than i- and ili-
- Most common responses:
  - um- (class 1 or 3)
  - u- (class 1a or 11)
- A likely explanation for um-s:
  - Most clan names and other ethnonyms follow an irregular 1/sg. → 6/pl. paradigm
  - ex: um-Xhosa → ama-Xhosa
    'Xhosa person/people'

Summary and Conclusion

Summary

- Xhosa speakers use root length to decide between class prefix allomorphs
- This alternation is represented in speakers' synchronic grammars

Conclusion

- Length-based alternations are not just a historical vestige
  - Speakers have some linguistic awareness of length as the basis for the allomorphy
  - They can extend that knowledge to the treatment of novel words; it's not lexicalized
- Consistent with other phonological evidence for bisyllabic minimal stem