Seenku phonology in the Sambla xylophone surrogate language
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INTRODUCTION
THE QUESTION

- Broad question:
  - What can surrogate language systems teach us about the grammatical structure of the spoken language?

- Today’s case study:
  - Relationship between the surrogate language on the Sambla balafon (resonating xylophone) and the spoken language, Seenku.
SURROGATE LANGUAGES

- Surrogate languages take human language and transpose it to a non-linguistic form, commonly:
  - Drums (e.g. Yoruba, Beier 1954)
  - Whistling (e.g. Hmong, Rialland 2005)
  - Flute (e.g. Gavião, Moore and Meyer 2014)
  - Xylophone
Two broad types of surrogate language systems (Stern 1957, discussed in Zemp and Soro 2010):

- Abridgment systems: Encodes some phonemic aspects of the language to convey meaning
- Lexical ideogram systems: Symbolizes concepts directly with no reference to phonemic information
THE FINDINGS

- Sambla *balafon* surrogate is an abridging system.
  - Tone, duration, and rhythm are encoded.
- Division between lexical/morphological tone and postlexical tone:
  - The former are strictly adhered to, while the latter are only variably encoded.
- As musicians become “more fluent”, they may encode more phonological processes of the spoken language.
THE UPSHOT

- Surrogate language systems can provide an unexpected source of linguistic data.

- Documentation of topics at the language-music interface deepen understanding of linguistic structures (and speakers’ perception of them) in addition to documenting (potentially endangered) cultural areas.
BACKGROUND
SAMBLA

- Ethnic group living in southwest Burkina Faso
- Sambla (also spelled Sembla) is an exonym for both the ethnicity and the language
- Endonym: [sɛɛ̃]
Endonym for the language of the Sambla is Seenku [sēē-kú] (ISO code [sos])

Northwestern Mande, Samogo subfamily

17,000 speakers across two dialects:

- 12,000 in southern Seenku (Gbene-ku), centered around the village of Bouendé (Gbene), focus of my documentation project
- 5,000 in northern Seenku (Timi-ku), centered around the village of Karangasso (Timi), described by Prost (1971)
SEENKU TONE

- Four tonal primitives
  - eL (ã), L (à), H (á), eH (ã)
  - L is largely restricted to derived contexts

- Many contour tones
  - Lexical/grammatical contours: eLeH (ã), HeL (â), eHeL (ã), eLeHeL (ãà), eLHeL (ãâ)
  - Phonologically-derived contours: HeH (ãã), eHH (ãá), eLL (ãà), HL (ãà)
WORD SHAPE

- Most Seenku vocabulary is monosyllabic:

  (1) kyɛ fâ bũ
  ‘peanut’ ‘flour’ ‘sand’

- Vowel length is contrastive:

  (2) a. fô vs. fôo
  ‘fonio’ ‘wind’

  b. nĩ vs. nìi
  ‘father’ ‘pregnancy’
WORD SHAPE

- A large number of words best described as “sesquisyllabic” (Matisoff 1989)
  - Intermediate between monosyllabic and disyllabic
  - Historically disyllabic but have undergone heavy reduction in the initial syllable, leading at least some speakers to restructure them with no full initial vowel, even in slow careful speech.

(3) sémâ  tègò  nègì
    ‘dance’  ‘sit’    ‘cow’
THE SAMBLA BALAFON
Balafon is the term for a resonator xylophone, with tuned gourds amplifying the notes of the wooden keys.

- Known as [bâã] in Seenku.

- Each gourd has a hole cut in it covered by a membrane (originally spider egg sac, now paper or plastic) creating a “buzz”.
KEYS OF THE BALAFON

- Sambla xylophone has a pentatonic tuning
  - Roughly 1, b3, 3, 5, 6 on a Western scale
- Each note has a name:
  - bââ-nà (lit. ‘balafon-mother’) is the tonic (called sèrâ-kwà in higher octaves)
  - tèrón-tèrón is the perfect fifth
  - Notes below each of these are followed by kyɔ-tɛnɛ (lit. ‘above’)
  - diô-bâã-dè (lit. ‘fetish-balafon-key’) is the b3, reportedly reserved for more secretive or sacred uses

Strand (2003)
ILLUSTRATION OF NOTES

Mamadou Diabaté, recorded in Vienna in November 2014
HISTORY AND PLAYING OF THE SAMBLA BALAFON

- Relatively recent arrival:
  - Musicians from Toussian country (a neighboring Gur ethnicity) arrived in the last quarter of the 19th century (Strand 2003)
  - The *balafon* was quickly adopted and became a mainstay at all festival and ritual events

- Played by three musicians at the same time
  - Simpler middle part, a more complicated bass line, and a treble solo
The Sambla also borrowed and adapted the Touussian surrogate language system.

- Presumably still in practice today, but to my knowledge unstudied

Seemingly two registers of the surrogate language:

- “Speaking”: used for conversing with spectators
- “Singing”: used for song lyrics
ANALYSIS
DATA SOURCES

- All data come from members of the same Diabaté family, the main musician clan (*griot* caste) in Bouendé.

- Most data and *balafon* history elicited with Mamadou Diabaté, a successful Sambla musician living in Vienna, in November 2014.

- Additional data elicited with his nephew Mousa Diabaté in Bobo-Dioulasso, Burkina Faso in summer 2015.
DATA CORPUS

- 109 phrases transcribed for notes and duration (in ms.)
- 55 from Mamadou and 54 from Mousa

- mó nã bèê bëlê sã
  ISG PROSP pig big buy
  ‘I will buy a big pig.’ (Mousa #103)
DATA CORPUS

Phrases contain a total of 589 “stress units”, mostly corresponding to words, each coded for:

- Tone(s)  
- Note(s)  
- Total duration (ms.)  
- Contour? (Y/N)  
- Long vowel? (Y/N)  
- Diphthong? (Y/N)  
- Di/sesquisyllabic? (Y/N)  
- Coda consonant? (Y/N)
BASIC RESULTS

What is encoded in the surrogate language:

- Tone (lexical and grammatical, including contours)
- Vowel length
- Diphthongs
- Sesquisyllabic
BASIC RESULTS

- What is **not** encoded:
  - Segmental properties

- What is **sometimes** encoded:
  - Postlexical phonological properties, including:
    - Contour tone simplification
    - Downdrift
TONAL PRIMITIVES

- Tone is encoded by note on the *balafon*
- Mainly in relation to other notes (tone is relative rather than absolute), but strong patterns emerge:

<table>
<thead>
<tr>
<th>Notes</th>
<th>Tone</th>
<th>Bc</th>
<th>B</th>
<th>D</th>
<th>Tc</th>
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To express contour tones, the notes for each tone are played in quick succession (first tone around 70ms).

Variation in the realization of tonal endpoints of the contour (usually in the lower of the two tones).
Case study example: eLeH:

- 46/58 map eH to S (high tonic)
- 38/58 map eL to T (5), another 9/59 map eL to Sc (6)
  - Compare: eL elsewhere more commonly played on Tc (3) or T (5) (rarely Sc (6), which is the most common note for H)
  - Cases of eL -> Sc typically by assimilation to a preceding Sc
CONTOUR TONES

- mó nẵ bể sǎ ñé
  ISG  PROSP pig  buy  NEG
  ‘I will not buy a pig.’

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Long vowels are also encoded with two note hits (see last ex.).

This increases the overall duration of the syllable:
LONG VS. SHORT CONTOURS

- If both contour tones and long vowels are distinguished by two note strikes, how are long contours encoded?
- Marginally, overall length of second note strike
LONG VS. SHORT CONTOURS

- Picture becomes clearer when we remove eLeH rising tones.

- All rising-toned syllables are phonetically lengthened in Seenku to accommodate the tone.

- No apparent contrast between short and long
SESQUISYLLABICITY

- Sesquisyllabic words are encoded the same as long vowels or contour tones: two note strikes in rapid succession... resulting in ambiguity.

- mó nǎ tégê ηmà / gyô mǐ
  ISG PROSP chicken eat water drink
  ‘I will eat chicken’ or ‘I will drink water’
Musicians treat morphological/grammatical tone processes and postlexical/phonological tone processes differently.

- Obligatory encoding of the former, rare encoding of the latter.

Demonstrates that native speakers are sensitive to a division in the grammatical architecture between the two types of processes.
MORPHOLOGICAL VS. POSTLEXICAL TONE PROCESSES

- Grammatical/morphological tone is always encoded.
  - Ex1: Plural formation (raising tonal chain shift)
    - bî ‘goat’ -> bĩ ‘goats’
  - Ex2: Tone spreading from object to verb in the irrealis
    - /sã/ ‘buy’ -> sã
  - ‘I will buy goats’

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MORPHOLOGICAL VS. POSTLEXICAL TONE PROCESSES

- Only rare encoding of postlexical/regular phonological tone processes.
- Ex: Contour tone simplification (particularly of eLeH)—very common in Seenku, but almost never encoded on the balafon.
  - Seenku: eLeH -> eH / H __ eL   [mó nǎ bɛɛ sã ðɛ]
  - Balafon: eLeH -> eLeH

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<td>ðɛ</td>
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</table>
| Time | 169 | 49 | 169 | 62 | 153 | 156 | 316 | 'I will not buy a pig'
Data suggest that older musicians may acquire a more Seenku-like fluency to the *balafon* language and apply more postlexical processes.

- Mamadou’s data contain 6 cases of either contour tone assimilation (eL -> H / H__) or simplification, while Mousa’s contain only 2.

- However, roughly equal proportions of downdrift, another postlexical process, so the data aren’t clear.
CONCLUSIONS
SURROGATE LANGUAGE AS A WINDOW

- In a tonally complex language, surrogate language provides a valuable tool for distinguishing between analyses.
  - Absence of postlexical tone processes shows underlying tone.

- Things I’ve Learned About Seenku from the Balafon™
  - Seenku is a 4-tone language
    - “derived M”, now L, is phonetically distinct from “non-derived M”, now H).
  - Future auxiliary /nǎ/ has a rising tone… (but is it LeH?)
Work on surrogate languages facilitates the inclusion of cultural practices in a language documentation project.

- Highly specialized tradition, takes years of training
- Could easily be lost under pressure of urban spread or migration
FUTURE WORK

- More data
- Comprehension studies
- Grammar of “singing” style of the surrogate language
- Acquisition process
ACKNOWLEDGMENTS

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REFERENCES


