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Editorial: Surrogate Languages and the Grammar of Language-Based Music

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Editorial on the Research Topic

Surrogate Languages and the Grammar of Language-Based Music

Most cultures have ways of keeping a close relation between language and musical expression. In many parts of the world, these two forms of expression can directly coincide in musical surrogate languages: systems in which musical instruments mimic or indirectly encode concrete linguistic expressions. Drums, wind instruments, and xylophones are commonly used for speech surrogates across different cultures, and these systems often demonstrate closer contact between language and music than is familiar in Western traditions. The importance of this "transfer" for linguistics was observed as early as work by Sapir (1933). However, while the documentation of speech surrogates has been of continuous interest to anthropologists and musicologists (Sebeok and Umiker-Sebeok, 1976), it is only recently that theoretical linguists have started to focus on speech surrogacy as a major area of study that interacts with these adjacent disciplines. Recent results reveal implications of whistled and instrumental speech surrogates for phonetics (Meyer, 2008), phonology (McPherson, 2018; Seifart et al., 2018), and syntax (Winter, 2014). This linguistic interest in speech surrogacy appears at a time of renewed theoretical interest in the linguistic analysis of music (Katz and Pesetsky, 2011; Schlenker, 2017) and dance (Patel-Grosz et al., 2018; Charnavel, 2019) also in circumstances that do not involve speech surrogacy.

The aim of this volume is to highlight state of the art work on speech surrogacy from theoretical linguistic perspectives. It represents the first explicit collection on speech surrogacy since the seminal volumes of Sebeok and Umiker-Sebeok in the 1970s, and the first ever collection to focus on the connections between these systems and theoretical linguistics.

James presents a broad overview of musical surrogate languages as systems of communication. He surveys decades of interdisciplinary literature to show how a complex interplay of discursive context, linguistic structure, and cultural constraints shape the form and usage of speech surrogates.

Four articles in the collection focus on Yorùbá drumming, perhaps one of the most famous cases of "talking drums." Akinbo explores the surrogate phonology of the *gángan*, part of a family of tension drums known in Yorùbá as *dùndún*. Based on primary data collected with five drummers, he shows that the *gángan* encodes the phonetic realizations of both lexical and grammatical tone. Syllable structure likewise plays a role in the system, with the drum membrane only optionally struck for onsetless (V) syllables. Durojaye, Knowles, et al. likewise study the acoustic properties of the *dùndún* including fundamental frequency, duration, and intensity. In addition to comparing these properties in *dùndún* "speech mode" to spoken Yorùbá, they also compare "drum singing" to sung Yorùbá, and find that the *dùndún* is capable of quite precise mimicry across modes. While the papers by Akinbo, and Durojaye, Knowles et al. focus on

production, the work by Durojaye, Fink et al. turns to questions of perception. In their experiment, 107 participants listened to samples of *dùndún* in both speech mode and musical mode and were asked to classify each sample as either speech-like or music-like; around half of the participants were familiar with the *dùndún*, and 28 participants were speakers of Yorùbá. On average, all listeners were able to distinguish between speech mode and musical mode, though accuracy was higher amongst experienced participants. Finally, the paper by González and Oludare looks at Yorùbá talking drums beyond the *dùndún* by comparing this surrogate tradition to the *bàtá* drum ensemble, which differs considerably in its organology from the tension drum. While the *dùndún* surrogate uses the fundamental frequency to mimic Yorùbá tone and intensity to encode limited vowel contrasts, the *bàtá* system is based in sophisticated timbral differences. Their study highlights the importance of considering instrumental constraints in the analysis of musical surrogates.

Two other papers, by Ros and Hudu, investigate drum surrogate traditions outside of Nigeria. Ros investigates linguistic encoding in the *sabar* drumming of Wolof in Senegal. Unlike Yorùbá, Wolof is not a tonal language, which raises questions of how linguistic structure is represented in drummed form. Ros' analysis of a corpus of rote and improvised phrases shows that different drum strokes are correlated with vowel quality, including height (like Yorùbá or whistled speech of non-tonal languages) as well as backness. Hudu focuses on surrogate traditions of the Dagomba of Ghana, among which are talking drums, bells, and fiddles. What is interesting in this case is that all of these speech surrogates have been borrowed from other ethnolinguistic groups, and as such, surrogate speech is not in Dagbani but in other languages like Akan and Hausa, which the musicians do not typically speak. Hudu discusses the acquisition and processing of these non-native surrogate languages and highlights the important role that they play in Dagomba culture.

Beyond talking drums, the two papers by Struthers-Young and McPherson cover phonetic and phonological encoding in balafon (resonator xylophone) surrogate languages of Burkina Faso. Struthers-Young provides a first account of the Northern Toussian balafon surrogate, which he shows to encode the language's three tones at a post-lexical level (including downstep). In addition, the system also encodes some elements of syllable structure. McPherson digs into syllable structure encoding in the related Sambla balafon surrogate tradition. She demonstrates that while some aspects are categorically encoded by the balafon, others show free variation between encoding strategies. Beyond these conscious encoding choices, acoustic analysis of duration shows a very tight relationship between notes on the balafon and vowel-to-vowel intervals in spoken Seenku, suggesting that surrogate timing is controlled by perceptual centers of syllables in the musician's inner voice.

The paper by Carter-Ényì et al. analyses bidirectional mapping (speech-to-music and music-to-speech) in the Ìgbò *òjà* flute surrogate of Nigeria. Carter-Ényì et al. use contour analysis to demonstrate the close connection between the *òjà* phrases and phonological tone in Ìgbò. By contrast, phonetic effects like declination were not found. A pilot identification task with one listener showed that most phrases could be correctly—and quickly—identified. Misidentifications were tied to dialectal differences, showing the importance of considering dialect in studies of musical surrogate speech.

Meyer and Moore also focuses on a flute surrogate tradition, this time among the Gavião of the Amazon. The *kotiráp* flute is one of three instrumental traditions said to be able to "sing," alongside a pair of mouth bows (*iridnáp*) and a trio of bamboo clarinets (*totoráp*). The authors show how these instruments encode the tone of Gavião songs rather than spoken language directly and represent a little-studied case of "surrogate song," which may show different patterns of phonological encoding from surrogate speech.

While most of the papers in the collection focus on instrumental surrogates, language-based music is not limited to this surrogacy. Franich and Lendja Ngnemzué presents an analysis of text-setting in Medɨmba, a Grassfields Bantu language of Cameroon. Rhythmic textsetting in African languages is understudied compared to tonal textsetting, since the metrical structure of these languages is often ill-understood and the polyrhythmic nature of many African musical traditions poses a challenge for identifying "the beat." The authors find correspondences between Medɨmba linguistic structure and musical rhythm that provide another source of evidence for stem-initial prominence in the language.

Finally, Amha et al. provides the first crosslinguistic documentation of "name tunes," a tradition wherein individuals are identified and addressed using either sung or whistled unique musical phrases. This rare system has developed independently amongst Oyda speakers in Ethiopia and Yopno speakers in Papua New Guinea and represents a unique way in which music can play a linguistic and communicative function, without directly encoding linguistic structure of the spoken language.

The wide range of topics covered in this special collection points to both the multifaceted nature of the language-music connection as well as to the broad distribution of language-based musical traditions worldwide. We hope this collection will spark further interest amongst linguists and language researchers and be the first of many exploring connections between linguistic theory and language-based music.

AUTHOR CONTRIBUTIONS

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