
Spoken rhythms and drummed speech: Bidirectional iconicity at the crossroads of language and music

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Language and music share many of the same raw ingredients, including pitch, rhythm, prosodic grouping, and timbre. This talk focuses on an underexplored aspect of the language-music connection: the iconic representation of one modality using the other, through onomatopoeia (music encoded as speech) and musical surrogate languages (speech encoded as music). In particular, I focus on drums to probe the bidirectional nature of this iconicity, what differences exist in the two directions of encoding, and what this tells us about the language and music faculties. All languages are capable of encoding percussive sounds through onomatopoeia, but certain linguistic and musical traditions possess an extensive vocabulary of lexicalized onomatopoeia, the most notable example being the system of *bols* in the North Indian tabla drumming tradition (Patel & Iversen 2003). Aspects of Hindi phonetics in the choice of syllables produce a close acoustic match to the sounds of the drums, while the pitch and rhythm of the performer's voice allows for a fairly faithful reproduction of the drum patterns.

Musical surrogate systems, referred to colloquially as “talking drums”, turn this iconicity on its head by using the sounds of drums to capture speech. However, we find an interesting difference in the linguistic categories involved in this bidirectional mapping: onomatopoeia rely most heavily on linguistic timbre (i.e. segmental contrasts), whereas drummed speech is typically based on prosodic features (tone, rhythm). This is unsurprising for drums whose timbre remains relatively fixed while the pitch varies, such as tension drums or slit log drums. More surprising are drums capable of producing a wide range of timbres, yet whose use as a surrogate continues to rely more heavily on prosody rather than linguistic timbre, such as the Yorùbá *bàtá* (Villepastour 2016).

In this talk, I illustrate these complex systems of spoken drums and drummed speech and argue that differences in encoding medium (timbre, pitch, rhythm) arise from two related sources: 1. Linguistic timbre has far greater complexity and dexterity than drum timbre, and 2. language is grounded in timbral contrasts, while timbre-centered music is rare. Thus, musical surrogate languages are still fundamentally music, and emulating prosodic aspects of speech constrains the number of contrasts the drums must reproduce, which may enhance its perceived iconicity as well as decipherability.

References: • Patel A. and J. Iversen (2003). Acoustic and perceptual comparison of speech and drum sounds in the North Indian tabla tradition. *ICPhS* 15, 925-928. • Villepastour, A. (2016). *Ancient text messages of the Yorùbá bàtá drum*. New York: Routledge.