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Is Rap Music or Speech?



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FOR THE GENERAL THEME OF “One world, many voices,” it is tempting to classify vocalization in some broad categories like calling, emoting, speaking, and singing. There is enough overlap, however, in these broad categories that it is difficult even to assign all singing styles to the category of singing. This appears to be the case for modern rap. Is rapping speaking or singing?

Quoting from Wikipedia, “rapping is a musical form of vocal delivery that incorporates rhyme, rhythmic speech, and street vernacular, which is performed or chanted in a variety of ways, usually over a backing beat or musical accompaniment. The components of rap include *content* (what is being said), *flow* (rhythm, rhyme), and *delivery* (cadence, tone). Rap differs from spoken-word poetry in that it is usually performed in time to musical accompaniment . . . Stylistically, rap occupies a gray area between speech, prose, poetry, and singing. The word, which predates the musical form, originally meant ‘to lightly strike,’ and is now used to describe quick speech or repartee.”

In various years at the Summer Vocology Institute in Denver and Salt Lake City, John Nix and I began our classroom teaching with an attempt to make the distinction between speaking and singing at an acoustic level. We came up with the following contrasts:

1. In speech, articulation (word intelligibility) dominates, whereas in singing word intelligibility is sometimes compromised for aesthetic reasons.
2. In speaking, pitch, duration, and intensity vary according to the speaker’s wishes in order to express the content of the verbal message, whereas in singing, pitch, duration, and intensity are prescribed by the *composer* via his/her interpretation of the musical message.
3. In speech, accents are for semantic clarity, whereas in singing accents are dominated by rhythm and meter.
4. In general, speech occurs at lower overall intensity levels than singing and within a narrower range of intensities. Singing has a higher average intensity level than speech and features a wider variation in intensities than speech.
5. In general, speech occurs at lower average f_0 than singing and within a narrower range of fundamental frequencies.
6. In general, speaking uses only a small percentage of the vital capacity of the lungs (lower tidal volume with each spoken phrase). Singing uses more of the vital capacity (larger tidal volume with each sung phrase).
7. In singing, vowels make up a much greater percentage of the total phonation time relative to speech. Vowel to consonant duration ratio in speech

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averages around 5:1; in singing, this can range up to 100:1 (50 ms for a consonant followed by a 5 sec vowel).

Joe Wolfe, physicist and music acoustician in Australia, wrote an article on a similar topic.¹ He characterized the differences between speech and music in general, which included instrument playing, not just singing. I paraphrase his conclusions:

The *pitch component of melody* is categorized and notated in music, while the *pitch component of prosody in speech* is not categorized and notated. Precision in fundamental frequency is highly desirable in music, while variability in f_0 is common in speech.

The *rhythmic component* is categorized and notated in music, while the *rhythmic component of prosody* is not categorized or notated in speech. Precision of rhythm is critical in music, but highly variable in common speech.

Short silences and articulation parts of plosive phonemes are only sometimes notated in music, while they are implicitly notated if speech is represented with phonetic symbols.

Relatively steady resonances, the *components of instrumental timbre*, are not notated in music, while formants, the *resonance components of sustained phonemes* are notated and characterized in acoustic phonetics of speech.


Dynamically varying and transient resonances are *not widely used in music*, while *varying resonances in glides and consonants* are categorized and notated in speech.

These descriptions bring me back to the characterization of rap. In terms of word intelligibility, it is similar to singing. In order to maintain the carrier of sound (voicing), many unvoiced consonants of speech migrate to voiced consonants in rap. That maintains continuity, but degrades intelligibility. Accents are more for rhythmic clarity than semantic clarity, which also brings it closer to music. With regard to fundamental frequency (pitch perceptually), there appears to be limited notation and prescription, which puts it into the category of speech instead of music. In the category of timbre, I must admit that I have not listened to enough rappers to determine if frequency spectrum variations are based on phonemic clarity or if multiple tone colors are used to mimic instrumental variations (brasses, flutes, strings, etc.). My general conclusion, rather tentative at this point, is that rapping is halfway between music and speech.

NOTE

1. J. Wolfe, "Speech and music, acoustics and coding, and what music might be 'for'," in C. Stevens, D. Burnham, G. McPherson, E. Schubert, and J. Renwick, eds., *Proceedings of the 7th International Conference on Music Perception and Cognition*, Sydney, Australia (Adelaide: Causal Productions, 2002).

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... the deep
Moans round with many voices. Come, my friends
'Tis not to late to seek a newer world.
Push off, and sitting well in order to smite
The sounding furrows; for my purpose holds
To sail beyond the sunset, and the baths
Of all the western stars, until I die.
It may be that the gulfs will wash us down;
It may be we shall touch the Happy Isles,
And see the great Achilles, whom we knew.

Alfred Lord Tennyson, from "Ulysses"