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Can Vocal Kindness Be Quantified?

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VOCALIZATION HAS ALWAYS INCLUDED both expressions of kindness and expressions of anger, contention, or confrontation. This is observed not only in speech among humans, but also in vocalizations of many nonhuman species. For example, while primates comfort each other vocally in close social circles, they also engage in vocal combat. In a contest for food, a mate, or protection of a social unit, bodily injury can be avoided by signaling physical superiority with energetic calls or screams, thereby avoiding life threatening injury from physical confrontation. Nonhumans also cradle their young with sweet and nurturing sounds, as humans do with lullabies and nursery rhymes. With additional bodily contact, vocalization combines sound with touch and vibrational sensations, an extra source of comfort. “Hands, touching hands, reaching out, touching me, touching you,” as Neil Diamond sang it in “Sweet Caroline,” creates an incredible bond. On the other end of the kindness spectrum, vocal attack can produce fear, hatred, and intimidation. Verbal abuse is all too common, even in so-called civilized societies. While progressive societies have for the most part laid down swords and guns to settle differences, hard core debate often results in shouting down others. It has become an art form in our day. The old adage “sticks and stones may hurt my bones, but words can never hurt me” applies to physical trauma, but emotional and psychological bruises from unkind words are often more resistant to healing.

What is it in the sound of a voice that signals kindness as opposed to confrontation or aggression? Several decades ago, a series of papers was written about the perception of competence and benevolence in a voice.¹ The study was done with speech synthesis. Variation of intonation was increased and decreased by 50% for speakers whose voices were analyzed and then resynthesized for presentation to listeners. There was a significant trend for increased intonation (melody in speech) to cause voices to be rated more “benevolent” by judges and decreased intonation to cause them to be rated less “benevolent.” Speech rate was also changed systematically. Slowing down the speech rate caused them to be rated less “competent.” Speeding up the rate caused them to be rated less “benevolent.” The results were more consistent over speakers for rate manipulations than for intonation manipulations.

Aggressive vocalization is often encoded with roughness. Screams and roars have a rich spectrum of frequencies but lack tonality and are inherently dissonant. In nature, rough sounds are attention getting, either in a cry for help, a warning, or a territorial dispute. Rarely are they associated with kindness or benevolence.

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A factor of kindness in spoken discourse is pausing and turn taking. It allows new thoughts to be developed while current thoughts are expressed. It shows respect and consideration for those who think first and then talk. The rate at which visual and auditory information is presented to us over today's media is ever growing, allowing less time for processing during acquisition. We can cope with it because there is much redundancy and repetition.

The above examples apply to speech, but not necessarily to singing. The rate of note production and the prosody elements (melody and rhythm) are generally prescribed by the composer. What is left for the singer to impose kindness acoustically? Scherer et al. discussed how emotions are superimposed on musical constraints.² Eight professional opera singers sang musical scales (upward and downward) that contained no inherent meaning or emotional content. They were then asked to impose emotions as if on stage. The results showed significant differences for the emotions studied. Sadness and tenderness differentiated from anger, joy, and pride on the bases on low vs. high levels of loudness, variable dynamics, high perturbation (roughness), and spectral energy balance.

While studies are scarce on the precise topic of kindness, we can draw preliminary conclusions that kindness in vocal communication may be quantified acoustically by: 1) tonal sounds with not much roughness; 2) sounds that favor the lower part of the harmonic spectrum (warmth rather than brilliance); 3) sounds that are not excessively loud; 4) a presentation that includes some pauses for cognitive and emotional processing; and 5) a limit of the rate of successive sound units presented to the listener.

This essay is by no means scientifically rigorous. It is only an attempt to conform to the general theme of World Voice Day 2019. Many of us agree that vocal kindness has not matured in many countries. I wrote this column in Stockholm, Sweden, where I have experienced the best example of vocal kindness—in the

language itself and in daily vocal interactions by the Swedish people.

NOTES

1. B. L. Brown, W. J. Strong, and A. C. Rencher, "Perceptions of personality from speech: Effects of manipulations of acoustical parameters," *Journal of the Acoustical Society of America* 54, no. 1 (July 1973): 29–35; doi.org/10.1121/1.1913571.
2. K. R. Scherer, J. Sundberg, B. Fantini, S. Trznadel, and F. Eyben, "The expression of emotion in the singing voice: Acoustic patterns in vocal performance," *Journal of the Acoustical Society of America* 142, no. 4 (October 2017): 1805; doi: 10.1121/1.5002886.

Joyful lady, sing!
And I will lurk here listening,
Though nought be done, and nought begun,
And work-hours swift are scurrying.

Sing, O lady, still!
Aye, I will wait each note you trill,
Though duties due that press to do
This whole day long I unfulfil.

—"It is an evening tune;
One not designed to waste the noon,"
You say. I know: time bids me go—
For daytide passes too, too soon!

But let indulgence be,
This once, to my rash ecstasy:
When sounds nowhere that carolled air
My idled morn may comfort me!

"To a Lady Playing and Singing
in the Morning,"
Thomas Hardy