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Overtone Singing: In The News Again

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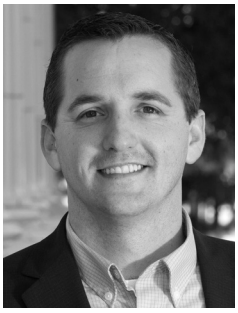

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Last fall, an online video of the German singer Anna-Maria Hefele went viral, rocketing to over six million views within a few days of being posted.[1] The video showed Ms. Hefele giving a brief demonstration of what she called "polyphonic overtone singing," and it quickly made the rounds on social media sites. Singing students shared it with their teachers, teachers shared it with their colleagues, and a brief firestorm of discussion erupted among commenters on the video. What became clear from that discussion is that there remains a considerable level of misunderstanding within the general public, as well as members of our own ranks, regarding both the history of overtone singing and the mechanics of producing this type of music.

HISTORY OF OVERTONE SINGING

True to the phenomenon of making a social media splash, this video was not Ms. Hefele's first or even most impressive video, nor are hers the only overtone singing examples available on YouTube, the popular video sharing website. Overtone singing always garners a mixture of awe and curiosity when presented to modern audiences. It is far from a new practice, regardless of this recent flash of media fueled attention.

While a precise "point of origin" for the use of overtones as a prominent element in a vocal music genre proves elusive, the best known roots are in Mongolian and Tuvan chanting. Even in these cultures, there is no clear explanation of how overtone singing developed. Tuvan legend claims that early humankind learned the style in attempt to mimic the sounds of nature surrounding them. This explanation is undoubtedly influenced by the Tuvan's tradition of animism—the belief that objects in nature have souls or spirits.[2] While overtone singing is occasionally performed in formal settings, its use was traditionally more widespread among both the Mongols and Tuvans in less strict contexts such as herding livestock and lulling babies to sleep.[3] During the drives for nationalism of the late 19th and early 20th centuries, however, it became an element of the historical national identity and was adopted into the school curricula.[4]

It wasn't until the mid-20th century that overtone singing gained any significant recognition in Western music with Karlheinz Stockhausen's *Stimmung* being the first major composition to utilize the technique.[5] Since

then, overtone singing has seen widespread use in many genres, but is most frequently found in so-called "New Age" and "World Music."

WHAT'S IN A NAME?

As mentioned earlier, Ms. Hefele dubs her technique "polyphonic overtone singing." In reality, like most overtone singers, she selectively amplifies overtones to create a melody above a relatively stable fundamental frequency (F_o). While her F_o does move, it may be questioned whether its movement rises to the level of an independent melody. As such, calling her technique "polyphony" – a musical style with its own rich history – might be a stretch. In his 2005 article in this journal, Stuart Hinds points out that he and other overtone singers are indeed capable of a style of overtone singing that could justifiably be called polyphonic, but this practice seems to be an exceptional extension of the style and not the most common practice.[6]

Ms. Hefele may be excused, however, for being uncertain of what to call her performance. After all, a single term for this type of phonation has hardly been decided upon, either by performers or by scholars. Ethnomusicologist Carole Pegg notes that English terms for the practice include "biphonic singing," "split-tone singing," "jew's harp voice," and "throat singing." French terms are no less varied, including "chant diphonique," "voix dédoublée," and "voix guimbarde." Furthermore, researchers cannot even agree upon a single transliteration of the Xalxa Mongolian term for the practice "хеемий."[7] It is little surprise, then, that "polyphonic overtone singing" would be added to the list of widely varied terms used to describe the same vocal behavior.

ACOUSTICS OF OVERTONE SINGING

From an acoustic point of view, a singer has two systems to work with, the sound source (or sources) and the resonator (or resonators). In speech or song with lyrics, the principal resonator system is assigned to producing phonemes of a given language, that is, vowels and consonants. Sometimes the phonemes are produced with less speech-like clarity in order to produce a desired vocal timbre or exceptional loudness. Such a trade-off compromises verbal intelligibility, but it also identifies stylistic differences.

In harmonic singing, no verbal message is produced. The tones have vowel-like qualities, but the resonances of the airway are used (in stairstep fashion) to land exactly on a specific harmonics. Formants (resonances) are therefore *played melodically* as if they were produced by striking piano keys. One could add "formant singing" to the list of names above.

The cleverness (and superb musicianship) in playing two vocal melodies at the same time can be likened to playing a piano that is pitch-bent continuously (anywhere from very sharp to very flat) as it is being played. Let's say that your knee moves a lever (left to right) for this dynamic pitch-bending. Now one low note on the keyboard is held down with the left hand, which allows you to play one melody with your knee. The knee melody is the drone, with a frequency F_o. The pitches on all remaining piano keys move up and down in lock step with the drone melody. Now imagine that only the keys that are harmonically related to the drone (F_o) are free to move (the first octave, the next fifth, the second octave, the major third, and so on). All other keys are stuck. To play a second melody with the right hand, your brain must track the movement of F_o from the drone melody and all of its harmonic intervals, n = 2, 3, 4, 5 . . . If "Happy Birthday" were attempted to be played by the drone with your knee, and "Mary Had a Little Lamb" were attempted to be played with your right hand, pitches from one melody would have to be added or subtracted in real time (in your brain) from the other melody and played on a keyboard that has only harmonic intervals, rhythmic differences notwithstanding.

Some electronic keyboards have pitch-bending controls that can be operated manually. If you have access to such a keyboard, try playing a melody by using only the pitch-bending control, placing a weight on one key to hold it down. After having mastered that melody, try playing a second melody on the harmonically related keys. You may have to mark them ahead of time. The second melody will be pretty, but difficult to recognize as the one planned. The exercise in all likelihood will demonstrate that the phenomenal element in polyphonic overtone singing is musicianship, not the instrument. Ms. Hefele is a great musician, playing a fairly ordinary instrument, one that is not ideal for polyphonic music. Precision in articulatory posturing (tongue, lips, jaw, velum) is the admirable motor skill, and the ability to

instantaneously sum pitch intervals is the admirable auditory skill.

NOTES

1. Anna-Maria Hefele, "Polyphonic Overtone Singing"; https://www.youtube.com/watch?v=vC9oh709gas (accessed October 21, 2014).
2. Theodore Levin and Michael Edgerton, "The Throat Singers of Tuva," *Scientific American* 281, no. 3 (September 1999): 80–87.
3. Carole Pegg, "Overtone-singing." *Grove Music Online. Oxford Music Online*. Oxford University Press: http://www.oxfordmusiconline.com/subscriber/article/grove/music/49849 (accessed October 21, 2014).
4. Ibid.
5. Ibid.
6. Stuart Hinds, "Argument for the Investigation and Use of Overtone Singing," *Journal of Singing* 62, no. 1 (September/October 2005): 33–40.
7. Carole Pegg, "Mongolian Conceptualizations of Overtone Singing (xöömii)," *British Journal of Ethnomusicology* 1, no. 1 (1992): 31–54.

Lynn Maxfield, PhD, is a Voice Teacher and Research Associate at the National Center for Voice and Speech at the University of Utah, where he also teaches at the Summer Vocology Institute and maintains a private voice studio. He holds a PhD in Voice Pedagogy and an MA in Voice Performance, both from the University of Iowa. Prior to joining the NCVS, he taught voice and voice pedagogy at Eastern Connecticut State University and Knox College, as well as music theory and ear training at Carl Sandburg College. In addition to teaching and researching, he maintains an active singing and teaching presence. He has been an invited lecturer for the Northern Utah NATS Chapter, the Utah Educator's Association, and the College of Idaho, as well as coordinating the 2012 and 2013 Singer's Workshop: TeachIng with Technology workshops at the University of Utah. A proponent of new music, Maxfield recently appeared in an eastern Iowa tour of Eric Chasalow's 2007 opera, *The Puzzlemaster*, and participated in the premier of several new orchestrations of the *26 Italian Songs and Arias* by Galesburg, IL composer Daniel Godsil. In 2011, Lynn joined the chorus at the Lyric Opera of Chicago in their production of Wagner's *Lohengrin*, and he now sings with the Utah Opera Chorus.