

英文音声学による「ボイスパーカッション」*

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“Beatboxing” through English Phonetics

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1. Introduction

“Beatboxing,” also known as “Vocal Percussion,” or ボイスパーカッション in Japanese, is an artistic form of human sound production in which the vocal organs are used to imitate percussion instruments. Beatboxing is a tradition which originates in 1980s hip-hop music and is closely connected with rap and hip-hop culture. Beatboxing involves the imitation of drum machines as well as drums and other percussion instruments and may include the simultaneous imitation of melodies, basslines, and vocals to create an illusion of polyphonic music. Beatboxing may be performed *a capella* or as a group with or without amplification. Beatboxing is traditionally performed as an accompaniment to rapping or singing. The primary aim of beatboxing is to produce convincing impersonations of drum tracks. This contrasts traditional use of vocal percussion in music such as the vocal percussion traditions of jazz *scat* singing or Indian *bols*. Vocal emulation of percussion sounds has been used pedagogically as a means of communicating rhythmic motifs in Celtic *lilting*, Chinese *kouji*, Korean *samul nori* as well as Cuban vocalized drum motifs *guauganco* or *tumbao* (Proctor et al, 2013). To a certain degree, even whistling and humming could be debated as early beatboxing techniques for expressing music with vocal organs.

Beatboxing has its roots in musical expression. Beatboxing developed in conjunction to hip-hop and rap music. The urban roots of beatboxing meant that it developed outside academia, and

separate from the vocal styles and music styles studied by universities and academic institutes. However, it cannot be assumed that this genre of music is not accepted by nor does not appeal to academic communities. The author believes that although beatboxing is an unorthodox style of music, it is a legitimate form of art that requires a great measure of talent to master. The author also believes that a phonetic approach to beatboxing makes it learnable and approachable. This report is a brief summary of how beatboxing can be learned through the English language.

2. Brief History of Beatboxing

The beatbox phenomenon, though a topic of debate among hip-hop enthusiasts, is commonly believed to have its origins in New York in the early 1980s. Doug E. Fresh and Biz Markie are considered to be the first officially recognized beatbox artists (Proctor et al, 2013). The actor/performer Michael Windslow also advanced beatboxing through his performances. These and other artists have advanced the art form by extending the repertoire of percussion sounds that are emulated, the complexity of the performance, and the ability to create impressions of polyphony through the integrated production of percussion, imitation of musical instruments and record “scratching.” Modern beatboxers take advantage of new technology such as loop-stations that enable the artist to record vocal sounds in “layers” that have taken beatboxing to a new level of performance quality. Dub-fx and PeteBox are recognized as beatbox artists that have mastered using loop-station technology to

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enhance their performance. Beatboxing has evolved into a community that supports the learning of the various skills and techniques required to be a competent beatboxer. There are official beatbox competitions on both local and international levels. Those that are well-versed on the “masters” of beatboxing are aware of regional champions. Beatbox artists like Birdyman, Xander, and Tom Thumb are recognized around the world—especially with the advent of the Internet and YouTube. Beatbox styles are often unique to the performer. Doug E. Fresh was well known for his “clicking” and “popping” whereas Biz Markie had a “throat thump” and “humming” style. Some beatboxers are known for the instrument sounds they have mastered. Michael Windslow and his electric guitar sound, PeteBox and his brass instrument sounds, etc. Beatbox styles have changed to morph classic, retro styles of music with new genres of music including dub step, house, trance, club, jungle, ska, and reggae.

3. A Phonetic Approach to Beatboxing

Beatboxing is appropriate for language study as the sounds made in beatboxing can be explained through language. English language is consonant-based enabling it to easily correlate to beatbox sounds. Manner of articulation for beatboxing is the same as the manner of articulation for speech—when a stream of air comes from the lungs, it is sometimes obstructed by speech organs such as the tongue and the lips (Someya, 2012). The speech or beatbox sound made in such a manner is associated with consonant sounds. Consonants can be classified according to how the stream of air is affected by speech organs. Classification of consonants is based on the manner of articulation. Beatbox enthusiast and promoter Reverend Gavin Tyte (2005) authored a phonetic approach to beatboxing. The tutorial videos originally released on Beatbox Jam® have become popularized on his YouTube® channel *Adventures of a Beatboxing Vicar*. Tyte (2005) explains and demonstrates the

consonants and methods for articulating beatbox sounds. There are four sounds made by beatboxers that include (1) plosives, (2) Fricatives, (3) clicks, and (4) oscillations.

Plosives are sounds where one stops the airway and then release the sound abruptly. For this reason, plosives are also called “stops”. Plosives include the sounds [p] pen, pencil, upstairs, apple, up, [b] book, ball aboard, job, sob, [t] take, table, station, art, date, [d] door, dear, landing, under, add, [k] kind, skill, backward, lack, sick, and [g] green, good, eager, dig, beg. One might think of these sounds as “explosives” since it is the stop and sudden release of air with the speech organ that articulates the sound.

Fricatives are the sounds made when a stream of air is narrowed by a speech organ and then air is pushed out of the mouth so as to create friction. Unlike stops, fricatives can be prolonged because they are not stopped during the production of the sound. Fricatives are continuous sounds such as [f] floor, telephone, refuse, roof, [v] vase, van, wolves, believe, serve, [θ (silent)] think, mathematics, healthy, path, [θ (voiced)] this, without, bathe, [s] store, start, useful, test, pass, [z] zebra, zero, cousin, husband, goes, [ʃ] sheet, shell, issue, push, bush, [h] hit, hook, greenhouse, ahead, perhaps.

Clicks come in a wide variety of styles and sounds. While challenging to correlate the sounds with specific words in the English language, these sounds can be made using the speech organs with a focus on the tongue “clicking” in different parts of the mouth or behind the teeth. Click sounds include the “k” and “t” sounds but there are variations based on using the tongue on different points in the mouth and by alternate breathe techniques such as breathing in while articulating the sound. Controlled tongue and breathing are also used to create “popping” sounds as well.

Oscillations refer to something that goes up and down or vibrates continuously. Oscillations include various speech organs such as the lips and tongue. These sounds can be the most challenging to master in beatboxing.

Beatboxers tend to use a variety of trills, rolls, and buzzes to produce oscillatory sounds. “Trill” used to describe the sound is in the phonetic sense, as an oscillation sound is produced by a repeated blocking and unblocking of the airstream and not in the musical sense of a rapid alternation between pitches. Trills can be in the form of the alveolar trill or the “rolled r” sound, a voiced bilabial trill or the continued “b” sound, or the uvular “r” trill. Skilled beatboxers can use oscillations and fast alternation of sounds as an alternative strategy to produce rapidly-repeated drum-roll and *dub step* sounds such as the “bdbdbdbdbd” for kicks and “tftftftftftf” for hi-hats (Stowell & Plumbley, 2008).

In phonetic terms, although these four sounds are the focus of beatboxing, there are other sounds that are introduced for making beatbox sounds including laterals, affricates, nasals, and retroflex sounds. Among these sounds, affricates are a common beatboxing sound to make the snare drum or symbol sound. Affricates share characteristics of both stops and fricatives. That is, a stream of air is first stopped by a speech organ and then is released gradually as in the production of a fricative. The English language includes four affricates such as [ts] boots, cats, gets, puts, [dz] kids, goods, heads, sends, buds, [ch] cheer, children, pitcher, kitchen, bench, catch, [j] jungle, joke, religion, stage.

Laterals are where the tip of the tongue is placed against the alveolar ridge and the air stream is pushed out through the openings between the tongue and the oral cavity. The [l] sound in the English language is perhaps the easiest example of a lateral since the [l] is made when the stream of air passes through the sides while the central area is blocked by the tongue. Nasals include sounds that are made by a stream of air coming up from the lungs and going through the nasal cavity when the uvula is lowered. Retroflex sounds are made when the lips are rounded and the tongue is curled backward, but the tongue does not touch any part of the mouth. The [r] sound is

an example of a retroflex.

Point of articulation is also important to consider for the production of beatbox sounds. A wide variety of articulation points involving all the speech organs are used for the production of beatbox sounds. Bilabials, labio-dentals, interdental, alveolars, alveo-palatals, and glottals are all utilized for making beatbox sounds. A more comprehensive explanation of the points of articulation with various examples would be feasible to present. However, in the interest of conserving the length of this article, the author would like to simplify an explanation by using the following illustration to demonstrate point of articulation:

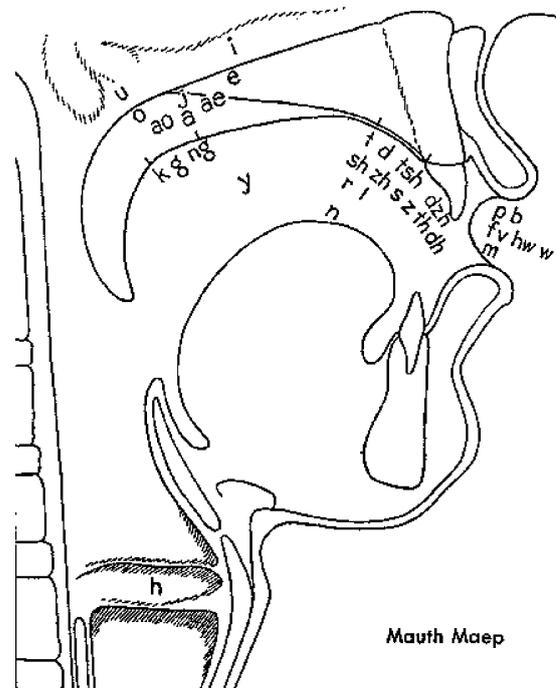


Figure 1. Illustration of How English is Pronounced, Designed by Westinghouse Time Capsules ©Wikimedia Commons, free media repository, April 4, 2012

4. Microphone Techniques

Although beatbox sounds are produced by speech organs, it is ultimately the microphone that becomes the beatboxers “tool” or “instrument” to capture the sounds of beatboxing. Microphone techniques are also important to master in order to become proficient at beatboxing. Especially the *close-mic*

technique is the most important technique for beatboxing. The standard dynamic microphones are designed to be used around 15-20 centimeters from the mouth for a “natural” sound quality (Shure Inc., 2006); however, beatboxers use a standard dynamic vocal microphone positioned around one or two centimeters from the mouth. This is to exploit the response characteristics of the microphone at close range, typically creating a *bassier* sound. Beatbox performers may also cup the microphone with one or both hands to modulate the acoustic response. For additional sound qualities or effects, the microphone may be positioned against the throat or the nose. Close-mic techniques alter the role of the microphone from being a transparent tool for capturing and amplifying sound to being a musical instrument (Stowell & Plumbley, 2008).

5. Beatbox Sentences

Beatboxing can be found in the English language. The following “beatbox sentences” can be used to initiate classroom practice. Kick drum, snare, swing bass, and hi-hat sounds are all incorporated in the phonetic sounds of these beatbox sentences. By practicing these sentences, one can come to “hear” beatboxing within the English language. “Born jump kick, jah, born jump kick” is a simple example to practice. One should focus on the consonants and deemphasize the vowels. Beatboxing is in the English language. “Boots and cats” is a common example; however, even the word “beatbox” is a beatbox “word” as in the sentence “back in the day, I used to beatbox.” Breathing techniques can be used to alter and enhance beatbox sentences as in the case of “soup ship” when pronounced breathing in, it becomes a backwards record play sound. “Bouncing balls” in a slurred deep voice for a bass sound or “bunting clout” for a hi-hat sound. Other beatbox sentences include the following:

- “baboons and pigs are beyond petite patterns”
- “soccer boot, soccer ball”
- “bounceable passion table”

- “to be baffled to be too clever, too clever to be too clever”
- “born to be too clever, to beat a baboon to clover tea”
- “born to be too puffy, to beat a baboon to poverty”
- “to be buffeted by clover baffled to be born too clever”
- “dancing kids are done kissing kittens”
- “aunt Sue can't sing about cats”

The author would like mention that even with comprehensive explanation, it might be difficult for the reader to completely understand the intended beatbox “sound” of the above beatbox sentences due to the inability to properly demonstrate stress and timing through a written sentence. However, with an active approach to creating the proper beatbox sound, the intended sound can be visualized. This author believes that the unavoidable experimental element is what makes this method of learning to beatbox attractive as the results are very much individualized by the reader.

6. Student Feedback

The author was at first reluctant to beatbox for his classes—even to demonstrate the sounds or “beatbox sentences”. The author’s students requested to learn more after beatboxing was demonstrated as a lesson warm-up activity. Beatboxing was intended to be nothing more than a warm-up activity to break the ice before a lesson. It has since evolved into a “lesson” of its own. Indeed an entire course could be devoted to the subject of beatboxing.

Student feedback has been overwhelmingly positive and comments from students include the claim that beatboxing had improved English pronunciation by helping students overcome the consonant-vowel pattern of the Japanese language causing English to be pronounced as “kana” Japanese (ie. black cat=*buraku kato*, McDonalds=*makudonarudo*, etc.) Stops in beatboxing require one to stop at the end of a consonant. To master this seems to

have covertly helped students improve their English language pronunciation.

7. Conclusion

This author believes that beatboxing as a vocal technique, music style and an art form deserves to have academic recognition. Further study of beatbox techniques could potentially fuel more detailed assessments. Beatboxing involves the use of many of the mechanisms found in human languages. The study of beatboxing has the potential to provide important insights into speech production and the range of sounds that can be articulated from the human mouth. Academic study of beatboxing might also create a more positive perception of beatboxing and its correlation to speech and music.

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