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So, You Want to Know About Plosives

Plosives are consonants which are produced by stopping the flow of air at any point in the vocal tract, and explosively releasing the air. This can cause havoc in the business of audio recording.

In order to better understand what plosives are, we have to learn a little about phonetics and how we make speech sounds.

Sound and Speech Production 101

Speech sounds are created by air being pushed from the lungs, flowing past the vocal cords which are like vibrating elastic bands sitting behind the Adam's Apple, and then on into the oral and nasal cavities. Once air is in the oral cavity, the magic of speech production happens, where the tongue, teeth, lips, throat and nasal passages change shape and posture, to produce all of the sounds of English.

If you make a continuous 'ah' and hold it, and change the shape of your lips and tongue position and shape, you can hear all of the vowels of English. Vowels are the pulse of every word spoken or sung, and clarity of vowels is very important to speech and song. Enough about vowels.

Back to plosives. Synonyms for plosives are: occlusives, plosive consonants, plosive speech sounds, stops, and stop consonants, to name a few.

Plosives refer to a particular nature, or feature of a consonant. Let's spend some time now on consonants.

We probably all remember from 1st grade that there are 26 letters of the alphabet, of which 21 are consonants and 5 are vowels. In addition to the 21 letters, we have 4 digraphs. Digraphs are two letters which together are sounded as one novel sound. When we put the following letter pairs together, we get these 4 phoneme digraphs: sh, ch, th and ng.

Place of Articulation

Letters and sounds are made in different places in the oral cavity. This is what we call PLACE.

One place, is the lips. We call these sound or phonemes, bilabials. So, m, p, and b, are bilabial consonants, which means, they are made with our two lips. You can see it in a mirror and feel the vibration on your lips when you make these sounds.

Manner of Articulation

In addition to PLACE, we have MANNER. There are 4 manners of articulation of speech sounds in English.

1. Free Air Release or CONTINUANTS: such as h, and w
2. Noisy Air Release or FRICATIVES: sounds like f, and s
3. Stop Noisy Air Release or AFFRICATES: ch, and j
4. Stop Free Air Release or PLOSIVES: p, b, t, d, k, g

Types of Plosives

There are 3 types of plosives.

1. In the case of p and b, the sounds are stopped by the lips and then the air is suddenly released. They are called bilabial plosives.

2. The sounds t and d are called alveolar plosives where the air is stopped by tapping with your tongue, the alveolar ridge behind your top teeth. I call it or the 'pizza spot', where most of us have sometimes burned the front roof of our mouth, biting enthusiastically into a hot bubbling slice of pizza!

3. The sounds k and g, we call velar plosives. Velar relates to the velum, that hanging-down-bit in the back of the throat that looks like a punching bag and swag drapery on either side, and sort of feels like dead fish. When the back of your tongue is raised and touches the velum, that is the point of contact that suddenly releases air to make k and g.

Voicing

Now we need to talk about voicing.

Recording people have trouble with unvoiced plosives. Those are the plosive sounds where the vocal cords are uninvolved, or the cords are 'open' or nonvibrating.

These sounds are p, t, and k. They can result in unattractive popping sounds and buzzing noises. In addition, a non-plosive sound, the continuant s, can also be a problem.

Allophones

Allophones are the subtle variations we hear in the same sound, depending on the position of the sound in a given word.

We don't realize it, but when we say the same sound in different word-positions, it is actually a different sound variation. The plosive t, for example, is produced differently in the vocal tract, therefore, records differently. Here are some examples.

1. Initial Position: In initial word-position, the sound is more explosive and you can feel a puff of air or aspiration: ***town***

2. Medial Position: In the medial position of a word, the sound is only partially released and is almost tapped: ***witness***

3. Final Position: In the final position, the sound is unreleased or minimally aspirated: ***hat***

Try this sentence with a candle, a light match, a mirror or just the palm of your hand. Say this p-loaded sentence paying close attention to where the p sounds are exploded to a greater and lesser degree:

Paul Harper Phillip adopted a pet hippo from a Peace River cop in April.

In conclusion, consonants, manner of articulation, place of articulation, and allophonic variation of any sound, particularly plosives, all make a difference to performers, technicians and professionals in the recording world.

Whether you are getting into podcasting, interviewing, singing or acting, knowing what you now know about plosive sounds can help you with microphone use such as axis and distance, mic filters, and other recording techniques, in addition to modifying your own articulation of speech sounds.

Knowing the how and why of anything, assists in better performance and production. Mind the plosives!

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