Tilo Hähnel, *Analysis of Vocal Recordings: Twang*, October 19, 2012
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«Voices & Singing in Popular Music in the U.S.A. (1900–1960)»
Research project funded by the German Research Foundation (DFG) PF 669/4-1.

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Analysis of Vocal Recordings:

TWANG

Tilo Hähnel

Abstract

The definitions of twang are manifold. Twang is used to characterise a sound quality in speech and singing, but also in acoustic signals in general. Regarding the singing voice, which is of interest here, «twang» can refer to the perceived sound as well as to the physiological basis which produces this sound. Moreover, twang used to be seen as a deficient vocal feature, which should be treated in speech therapy. Today, twang is a means of vocal expression in music taught in singing workshops and today's speech therapists use twang to improve the voice quality of patients.

1 THE TWANG SOUND

«Twang» refers to a sound, which is often described as nasal, but it may also refer to the physiological cause of that sound. Twang is difficult to define not only because of these two perspectives, but also because twangy sounds as well as their physiological bases are manifold themselves.

Lomax uses the term in his description of nasality:

> Traditionally, nasal tone has been described as one produced by a speaker with a cleft palate or a bad cold, or as a sound produced when the soft palate drops and the air is forced through the nose. The sound produced is «honky» or «twangy.» [1]

[*] *Research project funded by the German Research Foundation (DFG) PF 669/4-1.*

[1] Lomax, Rudd, Grauer, Berkowitz, Hawes & Kulig (1976)

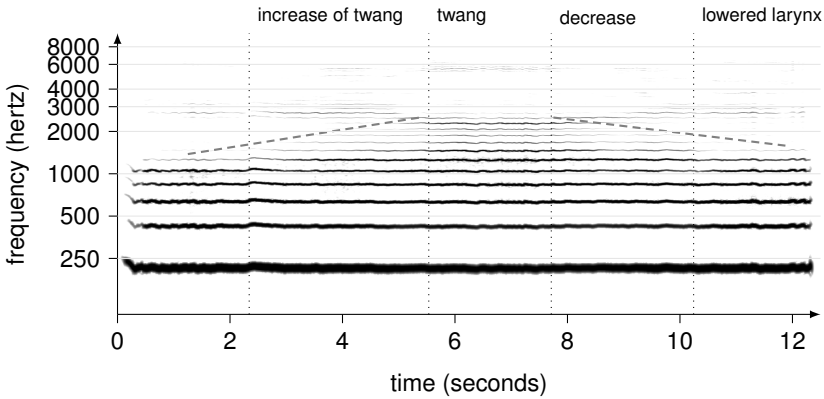

Figure 1: Self-experiment with the vocal «a», starting in a relaxed position, then increasing the twang by flapping the epiglottis and constricting the aryepiglottic muscles and releasing it again. At the very end the author lowered his larynx. During the twang phase, the energy of certain overtones increases (dashed line), which causes a sharper timbre and an increase of volume.

But he also remarks that

> At any rate, twangy, honky, nasalized tone is a strong characterizer of some singing styles even in the absence of nasal syllables, probably singing is normally louder and more forceful than speaking. When a wide sample of recorded song is examined, the absence of nasalization is also striking [2]

«Twang», as a sharp sound, can be produced by nasality, but does not have to. That is why one can find the term «nasal twang», which seems to be more precise, when it describes a twangy sound produced by the involvement of the nasal cavities.

In the nineteenth century, «nasal twang» was a term which was related to vocal disorders in speech (Bell 1890) or which was used to describe the singing voice that was trained in a wrong way or untrained at all (Novello 1859).

2 NASALITY

A voice sounds nasal when air flows through the nose. The consonant [n], for instance, is produced completely by an airflow through the nose. A vowel, on the contrary, needs the mouth but can also involve a certain amount of the nasal cavities. The more the nasal part is involved in the production of a vocal sound, the more nasal it sounds.

[2] Lomax et al. (1976)

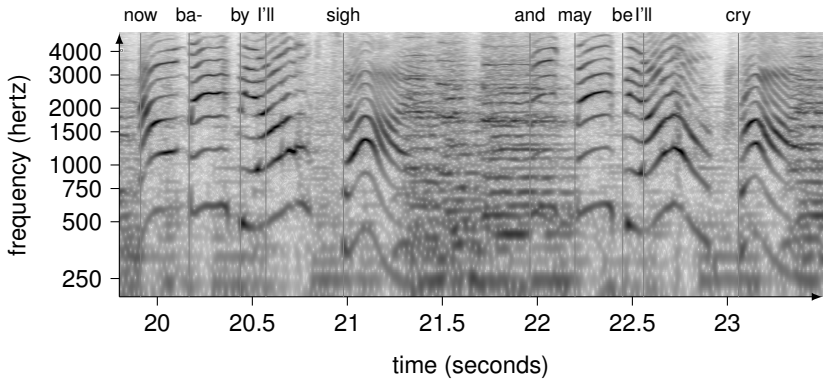

Figure 2: Rosetta Tharpe.«Four or Five times». ▶ The spectrogram shows the rich overtones in Tharpe's voice, which are produced by her twangy voice.

One can force the air going through the nose by lowering the soft palate. If the air, which should flow through the mouth is just blocked, this nasality damps the energy. Normally, this effect is not wanted in singing, for singers attempt being loud.

3 INCREASING INTENSITY AND THE «RINGING» VOICE

The sharp sound of the twang can be used to increase the intensity of a singer's or speaker's voice, when it is produced differently. Therefore, the term «oral Twang» can be used and distinguished from «nasal Twang»[3].

Physiologically, the increase is caused by narrowing the «channel» of the throat by flapping the epiglottis and constricting the aryepiglottic sphincter. The sound-filter effect of the twang can be seen in Figure 1.

In speech, this sharp tone is often associated with the southern state accent in the U.S., and also related to «country» or «hillbilly music»(Yanagisawa, Estill, Kmucha & Leder 1989). However, twang can be found in a number of recordings in other styles. For instance, Rosetta Tharpe displays an intense twang, which sounds like a quack of a duck[4] when taken out of its context, as in the sample shown in Figure 2. Interestingly, Wald (2005) links Tharpe's style to country music. The twangy voice is an important part in this relationship.

The physiological cause of oral twang is not restricted to the constriction of the aryepiglottic sphincter. This constrictions can be found in all intense vocals, like

[3]See Kmucha, Yanagisawa & Estill (1990), p. 347. The authors distinguish nasal, nasal twang and oral twang, besides a totally nasal sound like in ɲ.

[4]See Yanagisawa et al. (1989), p. 343.

twang, belt, and opera singing (Yanagisawa et al. 1989). Further, during oral twang, Yanagisawa et al. (1989) found

> . . . a decrease in the anteroposterior diameter of the aryepiglottic orifice as the arytenoids and the epiglottis approximated [5]

This approximation was found in belting, too, but to a greater extent.

4 THE POSITIVE SHIFT

Be it the proximity to the south-state speech quality or just the non-classical sound that cuts sharply through the background noise of accompanying instruments—twang became an important vocal style in popular music and many singers consciously trained their twang. After the advent of the electric microphone, the «Crooners» made use of the possibility to sing softly and get heard by using a nasal and/or twangy voice. Today, twang is an accepted means of vocal expression, but it is even used in therapy: Lombard & Steinhauer (2007) made use of the intensifying effect of the twang and found out that patients with a very weak and breathy voice can improve their articulation when they learnt to use twang. Formerly a diagnoses, a twangy vocal sound changed into a therapeutic target.

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[5] Yanagisawa et al. (1989), p. 344.

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