

Chapter 1:

Listening to Singers

The Human Voice: According to evolutionary science, this glorious instrument exists only through chance. Biologically, the larynx—without which there is no voice—is nothing more than a sphincter valve designed to protect the airway. When this valve is firmly closed, pressure can be raised in the torso to help with a variety of physical actions ranging from childbirth and defecation to lifting heavy objects. However, when this valve is gently closed during exhalation, only partially blocking the flow of air, the true moment of serendipity occurs; it begins to vibrate. These vibrations are passed via the air through the throat and mouth, where they are transformed into sounds we recognize as speech. The final miracle occurs when the sounds of speech are sustained in a musical fashion: singing.

Subsequent portions of this text will examine the physical properties of the voice, including aspects of anatomy and physiology, acoustics, resonance and voice production. All of these areas have been thoroughly studied by voice science and can be described with great objectivity. Singing, however, is a highly subjective, personal endeavor. Take a moment to think about the voices you admire—using nothing more than your imagination, you can probably hear them quite well. If you favor operatic repertoire, you can probably hear the voices of great singers ranging from Callas and Caruso to Fleming and Domingo. If your tastes run to popular music, you can no doubt hear the superstars of your generation, be they Frank Sinatra, Ella Fitzgerald, Elvis Presley, Bob Dylan, Madonna, Michael Jackson or Britney Spears. Your imagination also allows you to hear the voices of friends, family members and various celebrities. Use your imagination for a moment to hear the voice of the President of the United States singing *Happy Birthday to You*; it might not be aesthetically pleasing, but you can hear it in your head if you try!

How do we describe the sounds of singing? How might we speak to the vocal differences between Michael Bolton and Enrico Caruso? Few—especially those of us who come to singing from the artistic community—would do so using the technical language of voice science:

...his singing is characterized by a curious balance between the fundamental frequency and the singer's formant, exacerbated by the presence of partials and subharmonics, further complicated by excess rates of jitter and shimmer...

We are much more likely to describe a voice subjectively, using adjectives and metaphors:

...his voice is too dark and has a rough, coarse quality, at times becoming whiney and nasally...

Or perhaps:

...her plummy tones floated lyrically and effortlessly above the orchestra...

The language used to describe vocal sound is rich and varied. Many of the following terms will be familiar: lyric, dramatic, breathy, clear, heavy, coarse, nasal, vibrant, free, forced, wobbly, ringing, chiaroscuro, focused, steely, plummy—the list could go on and on. These are all subjective terms that may mean very different things to different people. Take the concept of a “free” voice, for example. Do you remember the first time you heard a genuine opera singer? Did you like the sound you heard? If your

previous experience with singers centered on commercial music or participation in an amateur choir, you might well have found the operatic singing to be forced and unnatural sounding. Indeed, many devotees of the various genres of commercial (non-classical) music earnestly maintain this point of view for a lifetime. If, however, you consider yourself to be an opera aficionado, you are likely to hear this style of singing as the epitome of free, natural vocalism. In this regard, singing might be compared to the world of dance: ballet and tap each require great skill to master, yet each has its own unique aesthetic. What seems completely free, natural and appropriate to one discipline is totally foreign to the other.

A single, universally accepted vocabulary describing singing is probably as elusive as a single, universally accepted method of breath management. A vocal characteristic one singer hears as vibrato might be labeled by another as shimmer or spin. One singer's optimal resonance is another's nasality. A raspy sound that is appropriate for an expressive jazz singer might be called voice damage in an opera singer.

One convenient way to describe vocal sound is through paired comparative words that can be placed on a continuum, such as dark/bright, heavy/light, or clear/breathy. The following terms are not necessarily qualitative—a dark voice is not better or worse than a bright voice—nor are they intended to be comprehensive; they can, however, serve as a starting point to help refine listening skills. Examples will be presented to demonstrate each of these vocal descriptors. Later, you will have the opportunity to listen and evaluate a variety of singers, classical and commercial, and to compare your perceptions to those of others.

Bright — Dark

The continuum from bright to dark offers a prime example of the complex nature of the singing voice, for few voices are exclusively one or the other; most contain elements of both. A term is borrowed from the visual arts to describe this phenomenon: *chiaroscuro*, which literally means light/dark. Brightness in the sound provides brilliance and carrying power; darkness provides warmth and fullness. In acoustic terms, bright sounds vary according to the relative amplitude of their overtones; bright sounds have stronger high-pitched overtones, dark sounds have stronger low-pitched overtones. These acoustic characteristics will be discussed in detail later in *Your Voice: An Inside View*. Two of the most famous tenors from the later twentieth century provide excellent examples of voices balanced differently in terms of *chiaroscuro*: Placido Domingo (darker) and Luciano Pavarotti (brighter).

Twang — Loft

Twang and loft are qualities of vocal resonance. Twang resonance¹ results from a narrowing of the vocal tract to produce a brassy, edgy timbre. Loft resonance is almost the direct opposite, created by relaxing and enlarging the pharynx and lifting the soft palate. Readers who remember the speaking voices of Ross Perot and Julia Child have clear examples of twang versus loft resonance. In singing, twang is a prominent feature of vocal styles ranging from the belting of musical theater to country and western music. Loft is most often associated with classical singing, but is sometimes prominent in commercial singing as well. Bing Crosby, Dean Martin and Leon Redbone all provide examples of popular singers with "lofty" voices.

¹ Twang resonance is sometimes also called *ring* resonance. I have chosen the term twang to avoid any confusion between this general sound characteristic and the phenomenon of "ring" in an opera singer's voice, which results from the so-called singer's formant. Please refer to Chapter 4 for a detailed discussion of formants.

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Forward — Back

Back (sometimes called swallowed) and forward are indications of perceived placement of the tone. Back tones are often somewhat dark in tonal color and tend to give the impression of being caught in the throat or back of the mouth. Frequently, this is the result of excess tension carried in the root of the tongue. By contrast, forward tones are often described as resonating in the cheekbones—a sensation singers describe as being *in the mask*—and have more brightness within the chiaroscuro mix.

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There are strong interrelationships among these first three categories of voice descriptions. Dark sounds will often have elements of loft resonance and back placement. Bright sounds will often have elements of twang resonance and forward placement. It is important to remember, however, that few voices are exclusively at one end of the spectrum or the other. Gifted singers—the ones we most admire and appreciate—generally have a balance of bright and dark timbre, loft and twang resonance, and placement.

Light — Heavy

The terms light and heavy, which might be considered synonymous with lyric and dramatic, are indications of both the size (loudness) and color of a voice. In the operatic world, the entire voice classification system is based largely on this issue. For example, the weight of a soprano's voice—light or heavy—helps determine if she is best suited to soubrette, lyric, lyric-coloratura, dramatic-coloratura, spinto or dramatic repertoire. Of course, other factors come into play as well, including her timbre, facility with melismatic passages, overall range and comfortable tessitura, as well as her physical appearance. Chiaroscuro may also be relevant to the lightness or heaviness of a voice. Heavy voices are often, though not always, darker, while light voices are often, though not always, brighter. Recent operatic examples of outstanding light and heavy voices might be seen in Dawn Upshaw (lighter) and Deborah Voigt (heavier).

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Clear — Breathy

The clarity or breathiness of a tone is directly related to the amount of air that escapes with the sound. Physiologically, it is the result of incomplete closure of the glottis (the space between the vocal folds), and is often made worse by poor breath support. Breathiness is rarely heard in professional singers trained in the classical tradition; it is very common, however, in many forms of commercial music. Jazz lovers will remember the very breathy voice Mel Tormé, who was affectionately known as the *Velvet Fog*.

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Clean — Raspy

The continuum from clean to raspy indicates the amount of extraneous noise in vocal sound. Raspiness results from aperiodic events during vocal fold vibration, possibly caused by physiological and/or pathological voice disorders. The difference between raspiness and breathiness is easily heard: breathiness sounds like white noise or a hiss in the background of the tone; raspiness sounds like hoarseness and may include coarse, gravelly sounds. A distinction can be made between raspiness that is induced by a singer for artistic reasons and that over which the singer has little or no control. Some singers, including Louis Armstrong and George Hearn (the original Sweeney Todd in Sondheim's musical), deliberately induce a raspy sound by making their false vocal folds rattle against each other. [See Chapter 8 for a discussion of the anatomy involved in false vocal fold phonation.] Even operatic singers are sometimes heard to induce deliberate raspiness to depict moments of extreme emotion. In other singers, such as the inimitable Janice Joplin of the 1960's, raspiness might result from pathological voice damage caused by deliberate abuse, or overuse in a strenu-

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ous performing schedule. At the current point in history (early 21st Century), popular singers often employ a raspy, scraping onset of tone for expressive purposes, as exemplified by icons such as Michael Bolton and Whitney Houston.

Healthy ——— Damaged

Aural evidence of a healthy versus damaged voice is closely related to the two previous characteristics: clear/breathy and clean/raspy. Healthy sounding voices are generally free of unwanted noise. There is little excess breathiness and any raspiness is deliberately induced for stylistic or expressive reasons. Hoarse, raspy sounds that are beyond the direct control of the singer are potential signs of vocal damage. Other symptoms would include cracking or popping noises, diplophonia—the unintentional sounding of two simultaneous pitches—chronic problems with intonation, and excessively wide and/or slow vibrato. Some of these symptoms can be the natural consequence of extended voice use and aging. Fans of Frank Sinatra will note the gradual increase in a raspy, throaty quality as he aged and his voice gradually deteriorated.

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Conversational ——— Ringing

Classically trained singers generally produce a sound that is characterized by a characteristic known as ring. Acoustically, ring is caused by vocal tract amplification of very high overtones in the pitch range roughly equivalent to the highest octave of the piano keyboard. Ring is essential for singers who must project their voices over the sound of an orchestra without the benefit of electronic amplification.² Ring is much less important for electronically amplified singing, regardless of genre; indeed, if it is present in the tone, amplification may make the voice sound unnaturally bright and harsh. Rather than using ring, non-classical singers often employ a more speech-like, conversational timbre, as typified by artists such as Judy Collins, Ani di Franco and Elton John.

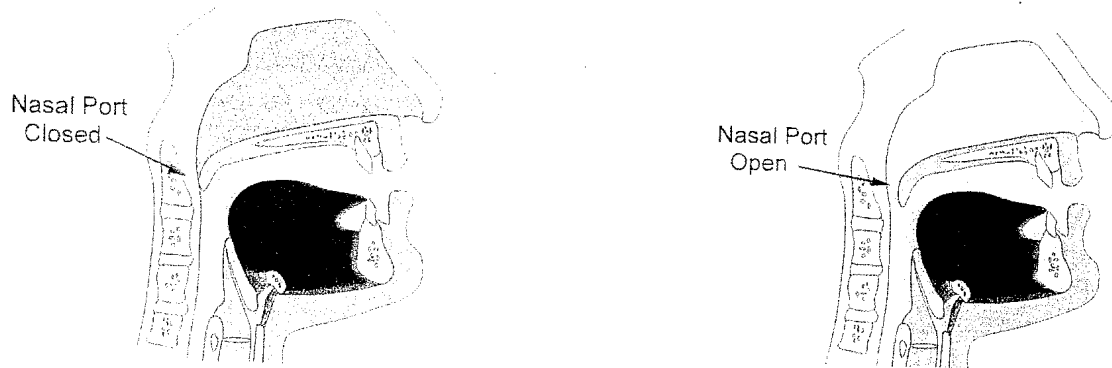
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Nasal ——— Non-Nasal

Nasality is exactly what it sounds like: a tone that actively resonates in the nasal cavity. It is caused by a low, relaxed soft palate that fails to seal the passageway from the back of the throat into the nose. When the soft palate is raised, the nose is disengaged as a vocal resonator. You can prove this to yourself by sustaining a pitch with your palate lifted so no air travels into your nose. Gently pinch and release your nose—if your soft palate is completely raised, you will not hear any change in timbre. Nasality can coexist with various other vocal timbres, particularly twang and loft. In classical singing, it is sometimes used by tenors and baritones as a means to help negotiate the upper passaggio region. The aesthetic merits of this approach are best left to the singer and listener: some like it; some don't. Nasality is also a natural consequence of language. In English, this only includes voiced, nasal consonant sounds, such as [n], [m] and [ŋ]. In languages including French, however, some vowels are also nasalized. A singer who cannot control nasality will have great difficulty differentiating between French words such as *mon* (my: [mõ]) and *mot* (word: [mo]), which vary only in the nasality of the sustained vowel.

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² The role of resonance and timbre in voice projection will be discussed in detail in Chapter 4.



Free ——— Forced

Free versus forced production is perhaps the most subjective of all the descriptors suggested in this text. As previously discussed, assessment of vocal freedom is generally based on personal experience. To the teenager with little or no exposure to classical music, the latest star from MTV will sound utterly free and natural, while singers at the Met seem forced and contrived. The typical patron (or singer) at the Met, however, likely has the exact opposite impression. What is vocal freedom? Perhaps this is an illusory concept. The operatic tenor in the role of Rodolfo must make the audience believe his high-C in *Che gelida manina* is completely free and easy to sing; his body, however, must work very hard to produce the note. As a general guideline, we might apply the following rule: the amount of force should always be appropriate to the desired vocal quality. Singers—in all styles—are likely to increase the perceived force to depict moments of strong emotion. Forced sounds give the impression of being taxing on the singer. If prolonged, they will induce hoarseness or noticeable vocal fatigue. Free tones, on the other hand, give the impression of ease. A singer should be able to continue in this fashion without noticeable fatigue even after extended periods of singing.

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Vibrant ——— Straight Tone

The continuum from a straight tone to a vibrant tone indicates the presence of vibrato. Vibrato can be defined as a long-term vibration or oscillation superimposed on a sustained frequency (pitch). What exactly does this mean? Imagine a soprano sustaining the pitch A⁴, located a major sixth above middle-C on the piano keyboard. This pitch is also frequently referred to as A-440, the pitch to which the orchestra tunes (though some now creep up to 444 or even higher). The number 440 indicates the frequency of the pitch, that is, its number of vibrations per second. If the soprano sings this pitch with vibrato, two simultaneous frequencies result: 440 vibrations per second for the sustained tone; and four to seven vibrations per second within her vibrato. Vibrato is a normal occurrence in well-produced, free singing, and may be related to the body's natural tremor rate. It has two components: pitch and loudness. In a normal vibrato, pitch may vary by as much as a minor second above and below the center, with a compass of a minor third from top to bottom. Ideally, loudness subtly pulsates at the same rate, emphasizing the center pitch.

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Not all singers, however, employ vibrato. Classical music from the Baroque and Renaissance periods is often approached with a lighter, purer, and straighter tone. This is especially true for choral singing. In non-classical genres, vibrato may or may not be present. Often, it appears exclusively as an expressive device, used sparingly to decorate a final, sustained note in a phrase.