

Changing Her Tune:
How a Transsexual Woman Claims A New Identity Through Voice

by

Katharine Stoel Gammon

B.A. Anthropology
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Submitted to the Program in Writing and Humanistic Studies in partial fulfillment of the requirements for the degree of

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Signature of Author: _____

Department of Humanities
Program in Writing and Humanistic Studies
May 7, 2007

Certified by: _____

Marcia Bartusiak
Visiting Professor of Science Writing
Thesis Advisor

Accepted by: _____

Robert Kanigel
Professor of Science Writing
Director, Graduate Program in Science Writing

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ABSTRACT

The human voice is an important indicator of a person's gender. For male-to-female transgender individuals (or transsexuals) the voice is one of the most difficult parts of the gender transition. Males have larger and heavier vocal apparatuses (larynx and vocal folds), which generally produce a lower sound. Transgender women can have voice surgery, but it can sometimes cause a Minnie Mouse-like falsetto or the complete loss of the voice. As a result, many transgendered women turn to specially trained voice therapists to learn how to speak more convincingly like women. The voice's pitch, although important, is not the only factor in creating a more female sound. Intonation, resonance, volume, speech patterns and formant frequencies also play significant roles in making a realistic feminine sound. There continue to be many unanswered questions about how listeners perceive the voices of transgender women and how best to blend the voices of transwomen into a comfortable range. Transgender women have many hurdles to face as they transition from male to female, and possessing an authentic voice is a way to smooth out the bumpy path they face.

Thesis Supervisor: Marcia Bartusiak
Title: Visiting Professor of Science Writing

One January evening in downtown San Francisco, the front hall of the Regency Ballroom was filled with people dressed in floor-length gowns. Sequins were particularly popular. A woman in a rhinestone-covered strappy number walked by, even her hair glimmering in sparkles. Other dresses dipped dangerously low in the back, revealing toned muscles, or cascaded in the front to expose buxom cleavage. Tightly laced corsets created slim waistlines and hourglass shapes. Splendidly styled heads with big curls and plentiful hairspray bobbed through the crowded marble corridor. Flashbulbs popped as the most celebrated participants walked into the room, their stiletto heels clacking against the cold stone floor. A buzz suffused the chamber, similar to the sound of a flock of geese collecting near a lake. The event was a black-tie gala, themed “A Return to Elegance,” which drew a few hundred members of TransGender San Francisco. Each year, its cotillion is a chance for new members of the transgender community to have a “coming out,” to walk debutante-style across the stage, and to meet other members of the city’s transsexual and transgender population.

The women continued to arrive, and a few men as well. Despite the mild San Francisco weather, many wore elegant heavy furs and were already sweating as they dropped them at the coat check. Heavy floral perfume saturated the air. Voices glissanded to falsetto and back. The elongated vowels were striking: It’s so goooooood to seeeeeeee yooooouu! What are you dooooooing these daaays? What a beeeeeeeaaaauuuuutiful dress you are wearing!

Some of the gala attendees were clearly in the early stages of male-to-female transition or perhaps transvestites—choosing to live as men and dress as women for pleasure in their personal lives. A young woman moved through the crowd in a tight lacy

black cocktail dress and a tiny, feathered pillbox hat. She looked completely “biological”—naturally female, lacking the broad shoulders and big hands that some transsexuals bemoan cannot be altered with surgery. Others stared at her in envy and whispered to each other as she passed.

As the show began, Allison Laureano, the president of TransGender San Francisco, wearing a dress inspired by Lara Turner and a hairstyle reminiscent of Rita Hayworth, took the front stage. After some opening jokes and banter, she introduced the candidates for Miss Transgender 2007. Later a rotund transwoman performer named Tommi Rose sang about a friend who had passed away from cancer years before. “She once said not to cremate her body because silicon doesn’t burn and it would be a bad, bad sight for everyone nearby,” said Rose, wearing a royal blue dress with so much sparkle that the ballroom’s walls were bathed in an underwater glow.

Among the attendees, there were those who had undergone sexual reassignment surgery to give them the genitals of their desired gender, those who had changed their faces to be more feminine, and those who had added breasts. Others had their facial hair lasered away or their Adam’s apples shaved off. But the one thing that seemed to make the most difference in establishing their new identity was the way they used their voices.

Tommi Rose possessed an amazingly versatile voice; she could reach into her upper registers easily and then smoothly transition back down to a bass to speak to her audience in an intimate-sounding way. Her glittery performance, full of jokes and poignant anecdotes, was observed by hundreds of transwomen and some transmen, munching on pasta salad at linen-covered tables. Alone on the stage under the spotlight, Tommi Rose represented the entire spectrum from man to woman; her voice was an

acoustic medley of the struggles transgendered people go through as they move from one way of being in the world to another.

* * * *

TransGender San Francisco is just one example of the public emergence of the transgender community in America. Roughly 25,000 male-to-female transsexuals are now living in this country—and close to an equal number of female-to-male transsexuals (who typically do not seek as many services as their male-to-female counterparts). They are nurses, radio announcers, city managers, lawyers, professors, bus drivers, and entertainers. One is a former health care worker, Wendy**, who now gives computer troubleshooting advice from her home in western Canada.

Wendy has long brown hair with face-framing bangs and wrinkles around her eyes when she smiles, which she does often. Her voice lilts in a singsong way, reminiscent of her childhood on a Canadian island. She is in her forties, but she appears younger in her bouncy gait or her habit of leaning forward and laughing in the middle of sentences. Wendy grew up in a family of ten kids in a small town, and she knew from a very young age that she was different from her siblings and neighbors. “I knew I was born in the wrong skin,” she says. “Living in a small town and trying to get help was absolutely horrendous.” When she was fifteen or sixteen, she worked up the courage to speak with a local professional counselor and confessed that she thought she might actually be a girl. The encounter did not go well. “The counselor’s jaw dropped. He stood

* Some names and details have been altered to protect the identity of sources.

up and came around to my side of the desk and he took me to the door, and said, ‘get out.’” Wendy was devastated. Her search for the reason why she felt uncomfortable in her skin stopped dead in that office. It took her many more years, and relocation across the country to the liberal Canadian west coast, to complete her transition from male to female. She lived for more than a year full-time as a woman, and obtained two letters—one from a doctor and one from a psychologist. Finally, Wendy qualified for sexual reassignment surgery. She traveled to London, where a specialist sculpted female genitalia for her out of her male parts—a long surgery which left her with some residual health problems. “I don’t know if gender transitioning ever really ends—if anyone ever really arrives at a location. It’s always a work in progress. But it is what it is, and I wouldn’t change a thing,” she says.

Some members of her family have been supportive, but others have shied away from her new appearance. “My youngest cousin*, who is gay, hadn’t seen me in about ten years. He was coming for a visit and I invited him over. He said, ‘Okay, but if I come in and see a man in a dress standing in front of me, I am *not* introducing you to any of my friends.’ When he saw me, he said, ‘Wow, you really did it well, I’ve got to say.’ I tell people I’ve just changed the box I came in, not the contents.”

Wendy and others are gaining far more societal prominence and acceptance than in the past. Bit by bit American society seems to be changing its attitude. Fading are the days of Frank, the outrageous transsexual transvestite from Transylvania in *The Rocky Horror Picture Show*. Replacing it are films like *Transamerica*, which stars Felicity Huffman as a transsexual woman named Bree who goes on a cross-country journey with her son. As the open road of the American landscape unfolded to Bree and her son on

screen, the world of a transitioning transsexual was presented to a wider audience. “Since the movie was about a journey, and the character taking that journey just happened to be transsexual, it’s something that everyone can relate to,” said Duncan Tucker, the movie’s director. *Transamerica* was nominated for two Oscars in 2005 and won a handful of other awards.

In 2006, the soap opera *All My Children* introduced the first transgender character on daytime television. In the plotline an international rock star named Zarf, played by Jeffrey Carlson, slowly transitioned from male to female to become Zoë. “I’ve actually come to know a lot of the people in the transgender community because of this,” Carlson said in a recent interview. “They have such determination and such heart. It’s become very, very important to me to tell their story accurately.” The show brought in actual transsexuals to play members of a support group.

Despite this influx of support, though, it’s still not easy in America to have gender dysphoria—the disconnect between the outer, biological sex and how a person feels inside. Consider the transsexual issues that have surfaced in recent news events. Steven Stanton, the 48 year-old city manager of Largo, Florida, was fired from his job after the local paper published his plan to begin his transition into a female in May. Stanton had served for fourteen years as Largo’s top bureaucrat. Members of the small Florida community have thrown eggs at his car and sent hate mail to him and his wife, who decided to stay with him. Still, Stanton says that he cannot continue to live as a man, and he will go forward with his plans for surgery.

Stanton’s perseverance in the face of opposition is not completely novel; people have been known to battle and cross gender lines since ancient times. The Roman

Emperor Heliogabalus was said to have offered half of his empire to any physician who could successfully equip him with female genitalia. He purportedly was “delighted to be called the mistress, the wife, the Queen of Hierocles” after marrying a slave and taking on the female duties of the relationship. Women who dress and behave like men, from Joan of Arc to Brandon Teena in the movie *Boys Don’t Cry*, have flown under the radar for centuries.

In non-Western societies, gender is not as black-and-white as it is in the West. Hijras in India are considered part of a third sex. Though most are born as males, they refer to themselves using the female pronouns, and they serve important functions in the royal courts and in the celebrations of male babies. Many Native American groups also recognize a third gender, called “Two Spirit” people, who have both masculine and feminine souls residing in the same body.

There are no reliable statistics on prevalence of transgenderism. The Diagnostic and Statistic Manual of Mental Disorders IV, the bible of modern psychiatry, quotes the prevalence of people who seek sexual reassignment surgery as roughly 1 in 10,000 of born males, and 1 in 30,000 of born females. In the United States, that would mean that 13,000 men seek surgery to become females. However, this number does not express the full picture because some transgender people live their lives as females, taking the hormones and other adjustments, without undergoing the sexual reassignment surgery for cost or other reasons. It is also not safe to be transgendered or transsexual in all places, so often people undergoing transition will try to go “stealth” and hide their transformation until they are ready to start fresh with a new identity.

Although it is difficult to generalize, some statistics have been gathered for transwomen in the U.S. who are looking for voice or psychological services for the first time; Marylou Gelfer, a speech therapist and researcher who works with transwomen, has noted the trend. When a man comes in for the first time, looking for help, he is likely to be middle-aged, either married or divorced, and the father of one or more children. On average he starts transitioning at thirty, but additional factors can delay that. For each marriage, a man will wait more than four years to ask for clinical services, and for each child, he'll wait more than two years. For example, for someone who was married once and had two children, the average age to begin transitioning is 39 years old. A person who was married twice and had four children might wait to seek professional advice until he is 52 years old.

It is also common for transwomen to hold, or have held in the past, traditionally male-oriented occupations. "Immersion in the masculine lifestyle represents the individual's attempt to suppress his/her gender dysphoria," says Gelfer. Men who privately desire to live as women often choose occupations where no one would guess their secret. While working typically masculine jobs may convince family and friends that the individual is comfortable in his gender role, the effort to maintain this role falsely eventually takes a heavy psychological toll.

"It's not what's between your legs that matters, it's what's between your ears," is one mantra of the transgender community. Far from viewing their gender-changing desire as a mental disorder, most people who have gone through the process say that it was primarily an anatomical problem. Mentally they always knew they were supposed to be equipped with a different body. Originally, the term transgender meant someone who had

not changed his or her anatomical sexual characteristics but who was living in the opposite gender. Today, it is often used in place of transsexual for people who have undergone sexual reassignment surgery. Some say that it is preferable because it avoids the concept of “sex” that “transsexual” inevitably carries. Still other transgender people choose to drop the ‘trans’ altogether and identify themselves as just a man or woman.

The path from male to female can be a long and arduous one. Using female hormones reduces body hair, increases breast tissue, and alters emotional response. “When I started taking the hormone therapy, I cried all the time,” says Wendy. “So when I asked the endocrinologist what was happening to me, she told me: your emotions might go up and down and that’s normal. I was always forward and open with my emotions, you know, crying at movies and stuff, but as a man I couldn’t really be.”

Hormone pills must be taken for the rest of a transwoman’s life, but they become as regular as brushing her teeth. On the other hand, facial feminization, where the bones and cartilage of the face are carefully fashioned to appear more feminine, takes place only once. Breast augmentation is the same way. None of these operations are easy or painless, but they are relatively quick compared to the physical reformation that must go on to change the voice from male to female. “The voice was definitely the hardest part of my transition, and the part that I have to continue to work on,” says Jennifer Andrews, a transwoman living in Tacoma, Washington. “And it’s different because not only is it a whole new way of speaking, but it’s a whole new way of life in many respects.”

Successfully transitioning into a new woman lies not in the new body or the new mentality. The voice is what ultimately makes the woman.

“My pre-transition voice could only be described as very loud, very locker room,” says Andrews, who began living full-time as a woman eight years ago, when she was fifty-seven. “When the therapists first heard me, they must have thought – this one has a long way to go.” Andrews worked for three decades in the Washington State correctional system, as a guard and trainer of other corrections officers. She spent a great deal of time testifying in court, and helping to prepare others to testify. “Part of my job was to teach female corrections officers how to be authoritative with their voices and how to speak in court. For thirty years, I taught women to speak like men, and when I retired I had to learn to speak like a woman.”

Now retired but very active in the transgender community in Seattle, Andrews says she speaks less than when she a male. “I have found that I was very, very verbal as a male. And speaking as a female, I do kind of limit what I say, especially when my wife is around. I let her do the talking,” she says with a giggle. She and her wife, Kate, have been married for nearly thirty years. “In some respects, it might be a welcome relief to her that I don’t talk so much now.”

Voices tell so much about us. Fortunes can be made or lost depending on the strength or tone of the voice. During the Nixon-Kennedy debate in 1960, those who were listening on the radio believed that Nixon had won. He had a low, mellow voice while Kennedy had a pinched, nasal Boston accent. However, those who saw the debates televised knew that Kennedy had stolen the race. Nixon, who had the flu, looked sweaty and pale. Kennedy appeared young, tan, and vibrant. If the debate had not been televised, voice alone might have changed Nixon’s fate.

The voice is crucial because it transmits important social signals to people about their fellow humans. In 2002, researchers tested this effect when they tried to find out what information listeners could understand from the tones of a speaker's voice. From audiotapes, forty participants listened to a series of consultations, each less than a minute long. The words blurred; just the tones were evident. From each bit of conversation—just forty seconds—the participants were able to determine which of the surgeons had been sued for malpractice. What precisely they heard in the snippets is probably not quantifiable, but clearly the listeners could understand from some para-linguistic clues who was trustworthy and who was not. In a similar way, transsexuals are judged in a matter of seconds and read as males or females.

Physiology alone cannot explain this reaction. The equipment humans use to speak is similar for males and females, except for the length and mass of the cords. “We could sound more similar to one another,” sociologist Joan Swann put it in her book *Girls, Boys, and Language*, “but we choose not to.”

Children learn early what it means to sound like a male or a female. Long before puberty, the average differences in the sounds of boys and girls are greater than they would be if anatomy were the only determining factor. One study of infants found that the pitch of babbling for both girls and boys increased about one octave during the first six months of life, but by the end of the first year, the range continued to increase ever higher for the girls, and dropped back lower for boys. The difference is striking, too, when considering that babies can sense which tones may be appropriate for their listener. A 10-month-old boy babbled in a high pitch when playing with his mother, but dropped his voice about three notes lower on the scale when communicating with his father. A

thirteen year-old girl changed her pitch about a half octave, depending if she was speaking with her mom or her dad.

By the time we have passed puberty, raising or lowering pitch is an automatic adjustment, something that happens as easily as smiling. Spreading the lips, like in making the “ee” sound, as opposed to rounding, as in making an “oo” sound, creates a shorter vocal tract and raises the pitch—the way some women talk and smile at the same time. By adulthood, according to Anne Karpf in *The Human Voice*, “men talk as if they were bigger, and women as though they were smaller, than they actually might be.”

* * * *

A vibration produces every kind of sound. A singer belting out a pop song, a cat meowing for its dinner, and a police siren all are vibrating to produce the sound. These vibrations disturb the air and generate sound waves, which expand outward like a ripple away from the source of the sound. If the sound waves reach someone’s ear, they are perceived as sounds. So the system depends on three things: a vibrating source to set up the sound waves, a medium like the air to carry the waves, and a receiver to detect them.

If you put your hand on a radio or stand near a speaker at a rock concert, you can often feel the vibrations of the speaker cone. If you strike a gong and then watch the surface of the metal, it vibrates, bending outward and inward very rapidly. This movement pushes and pulls at the air next to the surface of the metal. Tiny air molecules are shaped into a wave by the bending metal. The wave travels outward from the gong, becoming weaker and weaker until it dies away. Frequency is the number of sound waves produced per second and is measured in Hertz. One Hertz equals one wave or oscillation

per second. So, 200 Hertz means 200 waves per second. Normal human ears can hear in the frequency range between approximately 20 and 20,000 Hertz. A very low bass would check in at 32 Hz while a talented soprano could hit a note of some 1,000 Hz. Normal speaking is between 98 and 262 Hz. Pitch—one of the important markers of gender in speech—is the same thing as frequency. While scientists talk about frequency, musicians talk about pitch and octaves.

We speak by forcing air through the vocal folds, which are two flaps of retractable muscle tissue stretched horizontally across the larynx, in the back of the throat. Through a laryngoscope, the larynx resembles a giant eye, tilted on its end in the back of the throat. The vocal folds are pulled open like a curtain and then they vibrate to produce speech. Human voice is a product of this rapid oscillation, hundreds of times per second.

Our vocal equipment is a superb intricate machine. The muscles of the larynx—the voice box—have more nerves than any other muscles in the human body. The average larynx can stretch its sounds over two or three octaves (one octave is eight white keys on a piano). Think of that keyboard. The pitch of an average male falls around 120 Hertz, around D below middle C on a piano. The average pitch frequency for a female is about an octave above that, just below middle C at 220 Hz. Both men and women have a range that surrounds their average pitch, and for most of our speaking lives, most of us stay in the bottom part of our registers. We access the upper notes just for singing or to give emphasis. There is a space of overlap between the average male range and the average female range that is useful to transgender women.

If you listen to an orchestra, you might hear a violin, and oboe, and a trumpet all playing the same note. Even though the pitch is the same, these instruments have very different sounds. For a trumpet, the sound is created in the coils of the instrument, while in a violin it begins in the body of the instrument. Resonance in the voice works the same way. Changing the resonance space changes the clearness, openness, and echo of the voice. The voice's resonance depends on the size of a person's head, throat, mouth, nose, and sinuses. Operatic singers with large voices look physically big onstage, but it is not necessarily true that they have imposing stature. Often they just have large heads, which gives them a bigger resonance capacity to broaden their voices.

All of this leads to certain expectations about what we'll hear when we see a man or a woman speaking. But what happens when the voice doesn't match our expectations? "It's a problem that is called the McGurk effect," says Dr. Krzysztof Izdebski, a clinical speech therapist and founder of the Pacific Voice and Speech Foundation. The McGurk effect shows that when we listen to speech, it's not just sound that matters but also what we see. For example, if you watch a video of someone's mouth moving to say "gah" but the voice you hear says "bah," you may understand a sound that lies in the middle like "dah." Basically, it says that the visual and auditory signals compete and sometimes they compromise on a signal that neither of them gave. "This problem of hearing voices and seeing pictures is very relevant to the transsexual population," says Izdebski. "Male to female transsexual patients are usually extremely expressive in terms of their attire—they really want to look feminine. But seeing someone who dresses like a woman but speaks with a male voice is a shocking phenomenon for most people that interact with them. And it has an enormous impact psychologically."

In 1989, members of a California-based culture hacking group called the Barbie Liberation Organization illustrated the McGurk Effect beautifully. They discovered that *Teen Talk Barbie* and *Talking Duke GI Joe* used similar voice-box parts. The group, which took issue with Barbie's embodiment of sexual stereotypes and air-headed consumerism, purchased three hundred of the dolls, switched the voice parts, and returned the dolls to shelves just in time for Christmas. Unsuspecting customers bought up the dolls only to hear the Barbies declare phrases in deep voices such as: "ATTACK!" "Vengeance is mine!" And, "Dead men tell no lies!" On the other side of the aisle, little boys unwrapping the GI Joes were greeted with high-voiced phrases like: "Will we ever have enough clothes?" "Math class is tough." And "Let's plan our dream wedding!" The parents and children were shocked. The dolls weren't acting the way anyone expected. The shock came from the disconnect between appearance and voice. Since our voice ties us into our social role, sounding like a man or woman is a crucial factor in being accepted as one.

When it comes to gender, we listen and we judge. Women tend to make connections between male voices and certain male physical characteristics. If you heard boxer Mike Tyson's high and childlike voice apart from seeing his picture, for example, you might imagine someone physically miniscule and young. In 2000, Dutch researchers tried to test the accuracy of these assumptions we make based on the voice. They asked a group of forty-eight women to listen to the voices of thirty-six men of different ages and sizes. The women had to rank the male voices—without visual clues—on the level of attractiveness, weight, age, body type, height, and whether the speaker had a hairy chest. Each of the men said all of the five vowel sounds (a, e, I, o, and u) five times. Vowel

sounds are believed to transmit extra information about body size because they contain special resonant qualities called formant frequencies.

The women judged men with deeper, more resonant voices to be more attractive, have a more muscular body type, and have hairier chests. They were all completely wrong. With the exception of weight, there was no relationship between vocal and body characteristics. So why do women find a deeper voice more attractive? Is it some evolutionary brain relic that tells us to find a mate who can protect us from invaders? It's hard to imagine a situation where a woman wouldn't have visual clues when choosing a mate, but the voice certainly plays a role in human attraction.

If the voice is an instant indicator of gender, then changing the voice is an essential part of changing gender. One way to change the voice is through surgery. The voice box is just like any other instrument. A tuba has a deeper sound than a trumpet because it is bigger and has a more expansive resonance cavity. A cello does not sound like a violin for the same reason. How might an instrument-maker change a cello into a violin? Shorten and tighten the strings to raise the pitch.

Similarly, voice surgery shortens and tightens the vocal folds. Although all transsexuals in transition take female hormones like estrogen, years of development have made their physical voices permanent. It is one of the areas that female-to-male transsexuals have an easier time. When they begin receiving large doses of testosterone, their vocal folds automatically thicken and lengthen, giving them deeper voices. There is no existing way to surgically feminize the resonant properties of the airway; to change the shape of the inner nose, throat, mouth and sinuses would be difficult at best.

However, the vocal folds can be made shorter and tighter with surgery, which helps some people with the pitch of their speech.

Usually, voice surgery can eliminate the “lowest of the low” pitches but sometimes has ill effects or no effects at all. “It’s a natural thing to think that voice surgery is necessary,” says Jennifer Andrews, the transgendered woman living in Tacoma, Washington. “We are having all these surgeries anyway, and one more seems like the thing to do, but in some cases it does more harm than good.” Some of her friends who had the surgery ended up with Minnie Mouse-like voices that were high and squeaky and did not resonate properly. “Have you ever heard anyone who has just sucked a balloon full of helium? That is what they sounded like after the surgery,” she notes.

There are several voice surgeries that can raise the pitch. The most common, the cricothyroid approximation, shortens the vocal folds. “It’s a fairly simple procedure,” says Dr. James Thomas, a surgeon in Portland, Oregon, who has performed pitch-raising surgeries for two decades. “The place you start to cut is pretty easy—it’s the same place as you would put the knife for a tracheotomy if someone is dying at dinner.” The cricothyroid approximation is often coupled with the tracheal shave, a plastic surgery technique to reduce the size and shape of the Adam’s apple. The vocal surgery pulls the folds back and sutures them to the cartilage behind, in order to tighten them. The patient, under only local anesthesia, is typically awake the whole time. “I was awake throughout the whole procedure, but it was no more traumatic than anything I’ve experienced with a dentist,” wrote one discussant on a transsexual support website. “With the cricothyroid approximation, you pull [the sutures] as tight as you can get it. There aren’t a lot of decisions involved,” says Dr. Thomas.

Outcomes for vocal surgeries like this, though, are not consistent. One 2002 study found that out of 67 patients, 65 had some increase in their fundamental frequency—their average speaking pitch. However, only one quarter of the patients reached the typical female range. The remainder was left in the no-man’s land of gender-neutral pitch. The number of patients who reached the female threshold increased to 38% after six months, but most continued to be dissatisfied with the outcomes.

Sometimes, the surgery will work for a time, but then the patient will fall back to her old way of talking. One transwoman wrote that when the anesthesiologist inserted a breathing tube during her sexual reassignment surgery, the tube bumped the sutures and her voice dropped back into its male range. Dr. Thomas says that one-third of people do experience a drop, even if the sutures have not been disturbed. In the past, he routinely performed a repeat surgery on returning patients. “It’s like tuning a guitar string—if it becomes moist, the tone can change naturally even if the tension on the string remains the same. That kind of stretch just happens naturally,” he says.

But Thomas eventually became so frustrated with the inconsistent results of the cricothyroid approximation that he decided to create his own technique to carve a more female-like vocal space. He calls it the feminization laryngoplasty, and his inspiration came from his patients. “I had a patient come to me. She didn’t want to end up with a falsetto, and she was willing to try anything different that would get her into [the feminine] range.” By changing the size of the larynx, the feminization laryngoplasty is designed to alter the resonance in addition to the pitch. “In this one, we take off the front of the cartilage, where the Adam’s apple is. It’s a bigger surgery because we’re cutting into the windpipe. We cut the vocal cords in half and then suture them back to the thyroid

cartilage.” Cutting off part of the tissue both reduces the mass of the vocal folds and stiffens the remaining part. The shorter, tighter folds vibrate faster, thus producing a higher pitch. The doctor then places a tiny metal plate over the front of the voice box, which keeps the tension on the vocal folds. Unlike the cricothyroid approximation, the feminization laryngoplasty is not reversible. For the initial few weeks after the surgery, the voice is actually lower than the original voice as the vocal folds swell—just like the last time you had laryngitis and heard your voice drop when your throat was swollen. “Most people have better results with this type of surgery, because it impacts the resonance as well as the pitch of the voice. Still, it’s a learning process and everyone I do is different. I’m up to forty-seven surgeries now, and I learn from every one,” says Dr. Thomas.

Most voice and speech therapists, however, believe that surgery is not the best means of changing a voice. “It’s really hard for me to recommend surgery—cutting into a healthy system just doesn’t make sense,” says Sandy Hirsch, a private voice therapist in Seattle. “You are still going to have to work on all the other parts of speech. Even if you are going to get the results you want in pitch, it’s not worth putting your vocal system under so much strain. Then you have to work in therapy with a system that is not as flexible as it should be because you’ve cut it.”

An alternative method to fostering a feminine sound is through voice therapy. Transgender voice therapy is a tiny offshoot of the larger voice therapy field for singers with tired voices, throat cancer patients, and people who have other problems with their voices. It’s baptism by fire for this generation of voice and speech therapists working with transgender clients. Nearly all of them must learn by doing, fumbling in the

beginning and judging success or failure through the lives of their clients. Transgender voice often serves as a side note in classes about voice disorders. Some departments, like the University of Washington, have stopped serving transgendered voice clients altogether.

Carol Freidenberg was one of the first to deal with this specialty. She has been working with transgendered women since 1979—thrown into the occupation with little warning and only a vague sense of how to proceed. “It was just a strange and synchronistic series of events,” she recalls. Freidenberg is a tall woman, nearly six feet, with a tan face, short hair, and a pleasant, deeper voice. Her father was a choral director, and she had been raised in a musical family. After embarking on a career in speech pathology, she worked with children in local hospitals, helping train their voices and shape their speech. But she never expected to be called upon to combine her skills in a new arena.

“I got this phone call out of the blue—it was a transgender person named Betty, and she asked me if I would be willing to work with her. I told her, I’m going to be perfectly honest with you, I would love to work with you, I am absolutely intrigued, but I don’t have any experience in this area.”

Just a few studies of the transgender voice existed in the academic literature at the time. Freidenberg poured over them, trying to understand the most important issues—analytically—in making a voice seem feminine. She didn’t have a lot of information to draw from, so she began to observe people around her and encourage her client to do this sort of ethnographic research as well.

Using her background in speech language pathology, her knowledge of the larynx, and an open mind, Freidenberg set out with Betty on a vocal adventure. “We learned together—it was a huge success, and pretty soon I began receiving calls from other members of the community, which existed under a brown paper wrapper in San Francisco at that time,” she recalls.

Although more studies have since been done in academia, certain fundamental factors have remained the same over the years. “Establishing an atmosphere of trust is one of the most important challenges ... It’s quite different from someone who comes in who has had a bad cold and has developed chronic laryngitis or nodules. Sensitivity really matters, and most important, successful therapy starts with trust.” Some parts of the job have changed, though, due to the addition of new technology. “The visipitch [a machine that visually shows a person’s pitch in real time] and other equipment like it are really helpful for clients to understand exactly where they are,” says Freidenberg.

While Freidenberg has seen clients on a private basis, for one-on-one therapy, other voice therapists carry out their programs within a group setting. Shelagh Davies, a voice therapist in British Columbia, who received funding from the Canadian government, set up a public program to target changing the voice. Just establishing the protocols was a challenge.

“There are a couple of things that are really different about my program,” she says. First of all, she decided that her clients did not need to be living full-time as women, as most other therapists require. However, although people at any stage of their transition are allowed, she does ask that everyone in her group present either as women or as gender-neutral during the sessions. One client took this so to heart that she changed out of

her male work clothes into her female clothes while driving 100 kilometers an hour down the highway. Davies eventually told the client that it was okay to be late, and that she could change in the restroom at the gender center.

Creating a program that could teach just the basics of voice in seven weeks was a challenge. The first thing Davies addresses with her clients is pitch, since that is one of the most crucial elements for deciding someone's gender. They start with some general breathing exercises and shoulder rolls. Then they trill (rolling an 'r' sound) up and down, as high and low as they can reach comfortably. She chooses a pitch – she has settled on 185 Hz, which is an F# below middle C—at the bottom of the female range. She asks the clients to start to make vowel noises like “moo” and “mee” at that pitch. They do exercises like singing “not now” and then transitioning to actually saying phrases “not now” ('m' and 'n' sounds are good for rehearsing a new voice). “It was a kind of a musical training,” says Wendy, who went through Davies' course three years ago. “But it was just for using the voice better, getting it up into the [feminine] range.”

When it comes to men and women, there are no absolute divisions between male and female voices. While male voices usually fall at 120 Hz and female at 220 Hz, roughly one octave apart, there is a space between which is known as gender neutral. Between 145-165 Hz, male and female speakers naturally overlap. According to research at the University of British Columbia, male-to-female transsexuals whose voices fall within this range will usually be judged as male, even if they “present” as female in other ways, like dress and manner.

Voice therapists have long tried to find a way to test how successful they are in their work. In 1978, researchers created a test to find out how feminine a client sounded.

They used the voice of a client who had changed her pitch from 145 Hz (in the high male or low gender-neutral range) to 165 Hz (on the high end of the gender-neutral range) after seven hour-long therapy sessions. Fifteen listeners heard the client's taped voice, as well as the voices of a biological male and a biological female, before and after the therapy. They ranked how feminine the voices sounded on a seven-point scale. An average female was rated 5.9 and an average male scored a 2.0 on the scale. The client's rating before therapy was 3.7, on the male side; after therapy it raised to 4.6. The scientists' conclusion was that even after therapy, the voice was still discernable and different from that of a biological female speaker. However, they didn't report whether the listeners actually identified the voice as belonging to a female to a male.

The problem is, we don't use a seven point system in our heads. We make a binary decision about a person's gender—over the phone, in person, on the radio—in a nanosecond, and if we're unable to make a decision, it bothers us. Researchers call it cognitive dissonance when we are unable to make a coherent picture from the information with which we're presented. Davies herself had the experience: "I was once at a conference, and I talked for about ten minutes with a person without knowing the gender. I felt very uncomfortable—I couldn't tell either the biological gender or the preferred gender. The person was very pleasant but the whole time I was looking at the hands, looking around to try and figure out what pronoun I should use ... there were real psychological and trust issues coming up with it."

Although pitch is important, it is not the only issue that comes up in creating a new voice linked to a specific gender. There are other factors that go along with the pitch. In 2000, Marylou Gelfer and Kevin Schofield designed their own experiment to figure

out how transsexual voices were perceived. They used fifteen transsexuals, along with six born females and three born males. Some of the transsexuals had completed their sexual reassignment surgery, some were living full time as females but hadn't done the surgery, and still others were still living as men. Each participant read a standard passage used in speech therapy that elicits certain sounds and speech patterns. Twenty undergraduate students listened in and rated the speakers on the same seven-point scale according to how feminine they sounded.

The listeners recognized the born male and female voices easily. However, they rated only three of the transsexual speakers as female, ten as male, and two fell into the no-man's land of gender neutrality. Those who were recognized as females had a higher average frequency in their speech and a higher upper limit to their pitch. But interestingly enough, there was some overlap in the frequencies with the speakers who were considered male. So pitch couldn't be the only deciding factor. Those subjects who changed intonation often while speaking were perceived as more feminine, as well, but that couldn't explain everything. Gelfer and her team concluded that more studies should be done with spontaneous speaking samples, rather than reading a standard passage.

“When I was doing the course, doing the exercises, it got easier,” says Wendy. She worked in a hospital for years, before her course in voice feminization. “My voice sometimes used to come up at work. One time when I was taking care of one lady, she was blind actually, and I said something to her in kind of a flat voice, and she said, ‘I don't want a man watching over me.’ My colleague, she said, ‘No, that's not a man. That's Wendy, and she's been with us here for years.’ So the woman had obviously picked up on something, because she was blind. Everything else was enhanced.”

That flat voice could have been the giveaway for Wendy. Intonation can be important in judging gender, especially in those situations when the pitch falls in the gender-neutral range, overlapping between the male and female territory. Women's intonation is generally much more variable than men's, using more glides upward and avoiding both downward glides and monotone intonation. One only needs to sit near a group of teenage girls on the bus to recognize one of the most common female patterns of intonation: the voice gliding upward into a question. "So, I was like so ready to call him?" says one petite brunette clad in Pepto-bismal-colored jeans. "And then, my mom made me come to dinner?" This pattern has been well documented by linguists and sociologists, even given a title: upspeak. Upspeak is gaining popularity in the mass media through celebrities and teenagers.

In working with her burgeoning group in British Columbia, Davies wanted to find a way for the transwomen to use their voices in a new way, but without risking damaging the vocal folds, which can happen in voice transitions. She decided to apply Kitty Verdolini's vocal techniques. Verdolini is a speech pathologist with a degree in psychology who developed a program for motor learning—learning to use muscles more efficiently. "Kitty's system is not about telling clients to do *this* with your lips and *this* with your larynx. It's more about telling people to hum and asking them to describe what it felt like." When clients learn to mimic the sensations of the exercises, they train their muscles to react in a certain way.

Davies called Verdolini to tell her that she had adapted her protocols for transgender speakers. "Kitty was very surprised when I told her," she says with a smile. Even though the method is designed to produce a very safe and efficient sound—a sound

that produces very little damage to the vocal folds—the sound it makes also has a very broad resonant quality, which is more typically masculine. “There is a little bit of breathiness in female speech, and we know that comes from the little gap at the top of the vocal folds in females. So the input I’m giving them is for a more resonant voice, which might be at odds with the breathiness. I wondered about that, and what I decided to do is tell them what I was up to, tell them it’s going to be a really clear voice. And then tell them that once they got that sensation if they could add a little breathiness.” Most of Davies’ clients naturally learned to add breathiness to their voices, which balances out the more resonant male quality of the voice she teaches them. It’s a paradox that seems to work for the transwomen.

Along with intonation and resonance, the intensity of a transgendered woman’s voice can also make a difference. It’s hard talk loudly when you’re speaking high. Likewise, some male-to-female transsexuals have difficulties with their vocal intensity, or loudness, when they lift their voices. Therapists generally use a sound level meter to determine if clients are speaking in the appropriate loudness range. Although the stereotype is that women speak louder than men, researchers have determined that men actually speak a little louder. Nancy Nangeroni, host of the radio show “GenderTalk” remembers speaking softer when she was transitioning from a male to a female. “Part of it was an attempt to avoid public attention, and part of it was that it was really quite difficult to keep my voice strong at the pitch I wanted,” she said. Some transwomen who adopt this softer style of speech have problems communicating in situations where a higher vocal intensity is needed to overcome environmental noise, such as in a bar, or to convey intensity of emotion, for example to express anger or distress.

Soft-spoken people are often assumed to be soft in emotion. “I’m just me, and that’s it. I try to be as comfortable as I can in any situation. I haven’t changed inside,” says Wendy. She is now working from home, troubleshooting computer problems over the phone. “When I am on the phone, the volume thing is not really a problem. But the problem with the phone is that sometimes I get sir’d instead of ma’am’d.” Being called ‘sir’ on the telephone is a great worry of transwomen. “Usually I just correct the person and say, no, actually, it’s ma’am. But if they do it twice, I hang up,” says Wendy.

Articulation can divide along gender lines, as well. Studies show that women tend to articulate more clearly than men but in a light manner, while men tend to use harder articulation and “punch out” their words. Men also tend to drop the ‘g’ ending on ‘ing’ words—changing talking to talkin’—and may also reduce other final speech sounds.

There are other, less studied factors in creating a feminine sound. Davies received a strange voicemail message on her machine last summer. “It was a woman, and she said, ‘I’ve done your workshop and I would like to come in for some singing lessons.’” Davies was puzzled—she teaches two workshops, one for singing and one for transgendered speech therapy. She couldn’t understand why the woman would want to come back for singing lessons if she had already gone through the singing workshop.

“I played the message a few more times...and then I finally recognized the name.” The woman was not from the singing workshop, she was from the transgender speech workshop. Davies tried to find the source of her confusion. “I ran the voice message through my voice analysis software, and she had a fundamental frequency of 165 Hz and yet there was absolutely no doubt in my mind that she was female. No doubt

at all.” 165 Hz falls directly in the gender-neutral category. Most people speaking with this pitch would be ambiguous on the phone, and yet this woman wasn’t.

Davies had a hunch about how this woman sounded so convincingly female even though her pitch was out of the typical female range on the low end. “When she came in to see me, I palpated the larynx and I’m sure what she was doing was she was holding her larynx very high. It was almost a little bit prissy, the way she spoke, and it was very narrow. I’m sure that subconsciously she had made those adaptations.” The woman had intuitively held her larynx high in the throat, changing the qualities of the vowels, called the formant frequencies. “Formants might be the most unknown variable in transgender speech,” says Davies.

When you say ‘a’ in a word like *father*, you can change the formant frequency by moving your tongue, lips, and other parts of your vocal parts around to pinch the vowel tighter or looser. Pinching the vowels “high” can make your voice sound nasal, like an excessively prim aunt. “My suspicion is that it’s important, but how to modify them I’m really not sure. But that is the piece of the puzzle we really need to work on and we’ll get there,” says Davies.

What we say can also matter as much as *how* we say it for the perception of gender. Although changing her pitch is usually the top priority of for a new transwoman, a new pitch is going to be better accepted if it is part of an entire shift in language.

“It’s really like learning a new language,” says Seattle therapist Hirsch. “Even in that, there’s a problem—when you learn a new language you don’t leave your old language behind. In this case, they [transgender women] do.” She expects a certain grieving process to be involved with the loss of the client’s ‘native tongue’ and, around

the nine-month mark of weekly therapy, she almost always sees a plateau in progress that shows this grieving. “Even if it is the thing they want most in the world, there is still a loss when they move away from it,” says Hirsch.

That feeling of loss wasn’t the immediate case with Wendy. When she first called her friends and family on the phone and her voice wasn’t recognized, she was overjoyed. “The first time I called my brother and he didn’t know who it was, I was thrilled. It was a tremendous feeling.”

Some voice therapists advocate finding a voice “ideal” and mimicking her. But others think that such an approach sets up clients for failure. “I was finding that clients were coming into the clinic at the University of Washington and saying, ‘I want to sound like Demi Moore,’” said Michelle Mordaunt, a private voice therapist in Seattle. “And I had to tell them that it just wasn’t going to happen. I mean, I’d like to look like Demi Moore, but it’s not going to happen anytime soon. So instead of identifying the voice you want, let’s work with the one you have.”

Creative voice therapists draw from a variety of techniques involving all the senses. They also draw from the literature of a number of disciplines—from sociolinguistics and neurobiology to anthropology—and incorporate this information into their work with the patient.

Sometimes the very life story gets in the way of speaking like a woman. Those elements from the past influence the present. Consider a transwoman speaking to her voice therapist, trying to tell a story about her past in the armed forces. “We needed to get off the base for a while,” she says. “So me and the other guy, we were in the car.” How

does this new woman speak about her past? She was one of the guys at that point, but she certainly isn't now. Words to even express the person she once was seemed to be lacking.

Even when words are available, it's not always clear how best to use them to sound convincingly female. Language and syntax—the grammatical arrangement of words in sentences—are not as simple as “men do this while women do that,” but people in a certain region, of a certain age range, and who were brought up in a certain way do speak in specific ways. Some voice therapists try to design a model of speaking for the community in which they live and work, rather than for males or females in general. “So many of these things are so context-specific. Hard and fast rules just won't work. If you learned everything by the book, it wouldn't work,” says Davies. Instead of teaching rules, she assigns her clients to go out and observe men and women—in restaurants ordering food, conversing with the bank teller, asking a bus driver for a particular stop, and in all sorts of real-life situations. Wendy found this approach useful: “It was great doing the program to share some other experiences with other transsexuals. We would compare notes about what we experienced in the world, and that was really important, that sense of community.”

Additional clues about syntax and language among genders might be found by studying the development of verbal communication in boys and girls. Girls have their vocabulary spurts during their cognitive change between twelve and twenty months old, while boys follow a bit later, between twenty and twenty-four months. As children are learning language, they also learn to understand and create words and grammar constructions that may differ according to their gender.

British linguist Britta Mondorf has explored such gender nuances of syntax for many years. Her research shows that females tend to use “hedgies” or adverbial clauses—phrases that tell extra information about when, why, and where something happens—at the end of sentences, which at times gives a listener the impression that the speaker is unsure. A woman, for example, might say, “I did a good job on the test, I believe.” Male speakers also use adverbial clauses, but at the beginning of the sentence: “I believe I did a good job on the test.” Mondorf notes that women also tend to connect sentences using “and” while males use a shorter, more staccato style of speaking. For example, a woman might say, “It was so lovely to see Claudia and I think she’s becoming a very good artist.” While a male speaker’s version might be, “It was good to see Claudia. She seems to be a good artist.” These syntactic variations are highly simplified, but adopting the more feminine syntax can help transgendered women be more accepted.

Another typically female speaking way to speak is to use tag clauses, little phrases like “isn’t it?” that hang on the end of sentences. For example, “It’s a nice day, isn’t it?” reflects a more feminine way to converse. Some linguists believe that the phrases might be related to a feeling of less power, less knowledge, or subjective uncertainty. They might be expressions of politeness, or used as a form of diffusing disagreement. Women could be using the tags to be more listener-oriented, while men use them to be speaker-oriented. Whatever the reason, voice therapists encourage their transsexual clients to experiment with using more tag questions.

Some non-verbal speech depends with whom the transwoman is speaking. Voice therapists use a concept known as the hook, to describe the trigger—either topic, conversation partner, or setting—that pulls someone back into their male way of

speaking. For one client, it was history and engineering. She just could not discuss those subjects without falling into a really deep voice. For other clients, talking with their mothers was the culprit. Mom might be the biggest hook of all, according to some therapists: after all, she gave birth to a boy, not a girl. For Wendy, speaking with people from her family sometimes brings out not her male voice, but the accent typical of the place where she grew up. “Sometimes when I’m talking to someone back home, my accent will come out. I didn’t want to lose my entire accent, but I did want to get rid of part of it. Overall, things tend to work out,” she says.

When a person sits in front of us, it’s hard to focus only on the voice. There are dozens of other clues that fall into the category of non-verbal communication. Body language is a dialect that can be decoded and classified, as any other language. Davies asks her clients’ permission to comment on the way they present themselves. If they slump, she tells them to sit upright and cross their legs. If they lean forward, as is more typically female in style, she tells them how to achieve the usual distance between female speakers—twenty inches. Some therapists watch from the waiting room as clients get out of their cars, and give them advice on how to appear more feminine. In a way, these therapists are acting coaches as well as tamers of the voice, and they hone their skills by watching body language all the time. “In *Transamerica*, Felicity Huffman totally nails it in the scene where she’s walking alone down the hallway to her surgery. That walk—it’s that slightly insecure, that little bit of nervousness. To me, that’s the thing that stood out the most. She was saying so much without saying anything,” says Seattle therapist Mordaunt.

Like Bree in *Transamerica*, Wendy has gone through the gauntlet of health problems, emotional problems, and issues with blending in. “There is so much bad information out there. I think a lot of it is ignorance, and unfortunately when people hear ‘transsexual’ all they think about is sex. And that has nothing to do with it—sex is the furthest thing from my mind. First and foremost, it’s about being who you are. For me, being transgender wasn’t a choice. It was vital—change genders or die. I couldn’t continue to live that lie,” she says.

For Wendy, the voice was a big piece of the puzzle when she transitioned from male to female. “The voice was a lot of it ... and one of the pieces I have to keep working on.” When she wants to work on it, she uses the compact disc with voice drills that Davies gave the class, and practices the vocal exercises. But most of the time, she thinks back on the voice therapy that helped just accept who she is and where she is in life. “I am at peace with me, and I think that’s the biggest thing. If you’re not happy with yourself, you have to solve that puzzle first. And being transgendered, and having a lot of other issues on the table, can really complicate things.”

At the end of the interview, Wendy walked me to my car and hugged me goodbye. As I sat in the driver’s seat and watched her walk away, I thought about what Davies said on working with transgendered people: their journey is so human, so normal. Sensationalism doesn’t even come close to the power of the human stories.

Human stories were all around that ballroom in San Francisco. A large person with a white-painted face, clad in nun’s robes and a sporting a magnificent headpiece that resembled an ear brassiere, bustled around the room. Pronouns defied this being, a member of the Sisters of Perpetual Indulgence, a volunteer organization that does

considerable fundraising for the gay and transgender community. Sister Dinah Might, the hefty face-painted person, growled about the set up of the room, the caterers, about basically everything that was happening. At the corner of the stage, the new additions to the community—the debs—prepared for their walk. The audience members looked on quietly.

The scene mirrored the transgender community itself, oscillating between two poles. Some members seem to want to just blend in and live a normal life, and others want to stand up and be seen fighting for their rights because no one else will do it. The hushed conversations were mostly about work, or dresses, or what movies they wanted to see. A bored-looking twenty-something in a short black cocktail dress said in a breathy voice that she was crushing on the guy who did her electrolysis. Her companion, a woman with long side-swept bangs, leaned forward and nodded encouragingly. The debs took the stage. It was their time to shine.

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