CATHERINE PROVENZANO
New York University
Email: catherine.provenzano@gmail.com

Making Voices

The Gendering of Pitch Correction and The Auto-Tune Effect in Contemporary Pop Music

ABSTRACT This article is an examination of contemporary practices of pitch correction and what is called the Auto-Tune effect (TATE) on pop music voices. I argue that the split initiated by digital pitch correction softwares, which came to market in 1998, of the labor of precise pitch from the labor of singing more generally leaves in its wake a redoubled emphasis on the supposed truth of emotional delivery. Yet pitch corrected and Auto-Tuned voices are not understood to sound emotion in the same way, and instead rely upon and often reproduce hearings of voices as gendered and raced. I examine the status of pitch correction softwares (PCS) and the sometimes blunt, sometimes subtle ways they intersect with the statuses of marked identity and embodied vocality. These intersections inform ways of knowing emotion, creating epistemic relationships between emotion, body, voice, and work. Drawing on fieldwork conducted between 2014 and 2018 in Los Angeles and New York, I engage the specifics of the gendered labor involved creating pop voices, and the implications of the reality of that labor on the potentials the pop "cyborg" voice.
KEYWORDS: popular music, ethnography, music industry

In December of 2017 I came across a Facebook post by an Antares employee I had met the previous year during a fieldwork trip to the company that makes the infamous pitch correction software Auto-Tune (Figure 1). The post was a photo of a bag of chips with an Antares chip-clip clamping closed the opening, with the caption, "Because everyone needs a pitch correction chip clip!" On the clip itself appears the tagline, "Auto-Tune - Because pitches be crazy," a play on the colloquial phrase "bitches be crazy."[1] Pitches channels and melds with the pejorative term bitches, and the misogyny of the phrase sounds out.[2] The

1. This phrase is defined in the Urban Dictionary, a crowdsourced slang definitions website of the motto "Define Your World," in three nearly identical formulations: 1) "Someone once told me the words that I now live my life by, 'Bitches be crazy'. It is pretty self-explanatory. Every single girl is the spawn of Satan and therefore has some sort of screw loose in thier [sic] noggins which makes bitches crazy. Thats [sic] why you can't understand them as a guy, cause they're not real people;" 2) "Not so much a blunt statement as it is a motto in life. This simple yet profound observation states what we all think about bitches and their ways and sums up into simple terms the craziness that they be. Not all women are bitches, and not even all bitches are women, but the bitches that be are, in fact, crazy. The correct reply upon hearing this is to echo it back in confirmation;" 3) "1. Not a rude utterance, or misogynistic remark, merely a statement of fact, alluding to the widely accepted and scientifically proven postulate that states women are crazy 2. Usually muttered in the company of women, which creates a hostile response bordering on insanity, thereby proving the theory." https://www.urbandictionary.com/define.php?term=Bitches%20be%20crazy accessed April 28, 2018.

2. Swapping out "bitch" for "pitch" has become a kind of musical meme. One popular example is Joseph Karl Stiever's portrait of Beethoven with the text "I got 99 problems but a pitch ain't one" superimposed.

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FIGURE 1. Photo posted on Facebook in December 2017 by Antares employee. Screenshot from the author's computer.

play on words seems to summarize Auto-Tune's reason for being: pitches are as irrational as women, but they can be fixed.

"Pitches be crazy" equally ventriloquizes black vernacular and suggests that within it, pitches (and implicitly women), though still crazy, can be transcended by those with their hands on the Auto-Tune. From this standpoint, it is a tool of disavowing a naturalized, humanist-scientific, and white understanding of pitch; Auto-Tune is presented as a way of rejecting an illogical system of pitched oppression.

This article parses pitch correction in order to interweave the racialized and gendered interplays of pitch-corrected voices so starkly summarized in this Facebook post. It examines the status of pitch correction softwares (PCS) and the sometimes blunt, sometimes subtle ways they intersect with the statuses of marked identity and embodied vocality. These intersections inform ways of knowing emotion, creating epistemic relationships between emotion, body, voice, and work.

Scholars across disciplines have written of the complex ways voices sound gender and race.[3] Building on this work, I suggest the ways the gender and race of voices is constructed through the sonic presence or non-presence of pitch correction softwares and what is called the Auto-Tune effect (TATE). I show that the kind of labor a voice is heard as performing (emotional, technological, skilled), and the kind of self it is heard to sound (authentic, diffracted, ironic, true), relates directly to the way the voice's timbre is enhanced, subdued, or affectively mapped with PCS and TATE, and assumptions about the ways certain bodies are *supposed* to sound. As Nina Eidsheim explains, race resonates

3. Cusick 1999; Connor 2000; Schleichter 2011; Daughtry 2012; Mendi Obadike 2005; Eidsheim 2009, 2011, 2018; Kajikawa 2015; Stras 2007; Stoever 2016; McCracken 2015.

in the listening ear, and designations of the kind of body to which the voice belongs relies on listeners' "performative listening."[4] I extend this concept to illustrate the ways gender is performatively listened to and constructed alongside pitch correction and TATE.

First, a brief clarification on the difference between pitch correction and TATE. Pitch correction (or more concisely, "tuning") is the term audio engineers and vocal producers use to describe pitch editing that makes the voice sound "natural," i.e. that the pitches heard are precisely those that emanated from the body of the singer in the recording studio. Engineers and listeners use "the Auto-Tune effect," or simply "Auto-Tune," to mean the use of Auto-Tune software (and sometimes other softwares) that produces vocalities that are often heard as "robotic," or "technological," e.g. Cher (1998), T-Pain (2005, 2007), Kanye West (2008) Future (2014, 2015, 2016, 2017, 2018), Travis Scott (2015, 2017, 2018), among many others. Pitch correction has been used to perfect and naturalize female voices disproportionately, and I examine this as a form of female singing precarity in order to familiarize the reader with the gendering of pitch correction, or pitch correction's gendering. I then expose the ways Auto-Tuned male voices are afforded "artistic," "creative," and "emotional" authenticity that Auto-Tuned female voices are rarely given. Throughout, I reference ethnographic interviews of music industry professionals conducted in New York and Los Angeles between 2014 and 2018 to complicate both popular and scholarly hearings and discursive analyses of voices that tend to elide the particularities of pop music labor.

MAKING UP WOMEN

"Well you know like I said on the phone, no woman wants to go to a party without makeup on,"[5] said engineer Rikki when we met in a cafe on Los Angeles' Tejunga Avenue in Studio City. Rikki's use of the metaphor of makeup to talk about pitch correction is far from anecdotal; it echoes the discursive sense-making about pitch correction that shows up on online forums, in the studio, and what Auto-Tune inventor Andy Hildebrand himself has articulated in several interviews: "to modify something isn't necessarily evil, my wife wears makeup!"[6] PCS elicit comparisons to various cosmetic/body modification technologies, from photoshop[7] to Botox, makeup to plastic surgery; like these, PCS frequently elicit "are they real?" questions about voices.

None of the cosmetic technologies I listed are used exclusively by women, but they do point to a bundle of standard-shaping forces that center on norms of perfection, beauty, and the behavior of the body as indexed through what can be read on its surface. Such norms have long applied to pop women's bodies, so much so that they are a widely accepted prerequisite to entry into pop stardom.[8] Similarly, they can act as a barrier to entry for those who do not possess the right look. When producer Fab spoke with me about the early stages of building his career, he

4. Nina Eidsheim, "Synthesizing Race: Towards and Analysis of the Performativity of Vocal Timbre," *TRANS* 13 (2009).

5. Rikki, interview with the author, Los Angeles, California, October 2014.

6. PBS Nova Science NOW. "Auto-Tune," June 30, 2009. 4:10–4:15. http://www.pbs.org/wgbh/nova/tech/auto-tune.html

7. Ibid.

8. Kristin Lieb. *Gender, Branding, and the Modern Music Industry* (New York: Routledge, 2013), 31–66.

summarized, "Because I wasn't a pure pop artist with a very short skirt, it wasn't gonna go direct like that. So basically they liked what they heard but they didn't like the artist, which was me."[9] Fab's description rehearses a split of the sound from the artist, suggesting that the way the body looks is at least as important to the pop music market as how good it sounds. It also implies that normatively beautiful women's bodies and their "very short skirts" are more marketable than men's. The announcement of the body as a female one occurs significantly through its look, but in pop music the clarity of this announcement—of the body's gender—is reinforced through vocalities of sung sound. Singing, of course, is not the only thing a voice can do, but female pop artists are often confined to legible, presumably unmediated singing as opposed to more explicitly technologically embodied vocalities. The pop voice is a gendered voice, and women, largely, are singers.

Women's voices are by no means the only ones subject to pitch correction. But given the gendered landscape of recording labor outlined by scholars Susan Schmidt-Horning, Eliot Bates, Andra McCartney, Annie Goh and others,[10] and confirmed in my ethnographic work, women are in a particularly precarious position when it comes the tuning of their voices—first because there is rarely if ever another woman behind the controls doing the tuning, second because male engineers rarely ask permission to tune, and third because women's work in the studio spaces of pop music production is almost entirely confined to singing, which, as I have argued elsewhere, tuning softwares de-skill. This de-skilling, which is sometimes framed as "democratization," is problematic for pop singers of all genders, as it reinforces the legal, ideological, and monetary marginalization of singing labor in pop music, a marginalization with a long history.[11] But it is most problematic for women because pitch correction de-skills "natural," "transparent" singing which in contemporary pop music is largely work done by women. At the same time, it skills digital vocal processing and manipulation, which, in pop music, is overwhelmingly done by men in the roles of software manufacturers/engineers, audio producers/mixers/engineers, and vocal performers.[12]

In her essay "Multiple Voices," Adriana Cavarero describes the lineage of Western thought that has aligned sung sound with female embodiment. Her reading of the Italo Calvino short story, "A King Listens," describes a king who neurotically listens to the sounds of his palace and his temporary relief from his paranoia brought by the faraway sound of a woman singing.[13] Taking the role of the voice in Calvino's story seriously,

9. Fab, interview with the author, New York, October 2015.

10. Schmidt-Horning 2004, 2012, 2013; Bates 2012; McCartney 2003; Goh 2014.

11. For a feminist Marxist analysis of the voice's devaluation in 1960s girl groups, such as the Ronettes and the Shirelles—groups that made their "star producers" both incredibly famous, respected, and wealthy—see Jaqueline Warwick's *Girl Groups, Girl Culture: Popular Music and Identity in the 1960s* (2007).

12. For an in-depth examination of this gender divide and its impact on women working in pop music and on its periphery, see Fournet 2018, as well as "female pressure facts: female pressure report 03" (2013) http://www.femalepressure.net/PDFs/fempressreport-03-2013.pdf . See also Tara Rodgers *Pink Noises: Women on Electronic Music and Sound* (2010), Andra McCartney "In and Out of the Studio," (2003), and McCartney and Waterman (2006).

13. Italo Calvino, trans, William Weaver, *Under the Jaguar Sun* (Harcourt Brace 1988). In Calvino's story, the sound of this anonymous woman's voice is the only real music the king hears, in contrast to the systematized din of palace goings-on and even of courtly concerts: "but can it be called music? From every shard of sound you continue to gather signals, information, clues, as if in this city all who play or sing or put on disks wanted to transmit precise, unequivocal messages to you." The only sound that exists outside of these precise signals is that of the woman who sings.

Cavarero describes why it is significant that the voice that awakens the king is both female and singing.[14] The woman's voice breaks the king from the spell of semantics, from the rational realm in which sounds are only systems of meaning. The woman's voice is a feminized antagonist to this realm. Her voice is a body, not a signal. Cavarero says, "To put it formulaically: woman sings, man thinks."[15]

The tension in Calvino's story and in Cavarero's analysis between the rationality and precision of the man who hears and the seductiveness and corporeality of the woman who sings is pertinent to what I see as the split between rationalized/technological versus bodily labor in the creation of pop women's voices. Cavarero offers a trenchant analysis of Calvino's tale that offers insight into the material-labor process I analyze here. Men think, rationalize, and systematize the voice's sung utterances using editing tools that include PCS; women come into the studio to sing from their "throat[s] of flesh,"[16] which provide both the particularity of the body—the ability to hear this body as opposed to that body—and a more generalized form of embodiment—a fleshy body in a studio—that seems to act as a prerequisite for "real" sung sound.

The role of women and women's voices as the most marketable material of pop stardom speaks to an ongoing reverence for female embodiment.[17] At the same time, pervasive use of pitch correction softwares to fashion market-viable and affectively potent voices articulates an inherent suspicion of embodiment, and in this case largely female embodiment—it is not rational, marketable, or correct until disciplined by men and software. I do not wish to give the impression that the women of pop are somehow unskilled, rather that the skills for which they are valued (their treasured emotionality, their pure bodies, birthing emotion, occupying the intimate space of sung sound) articulate a problematic set of assumptions about female worth, and create a precarious dynamic of female agency and power in pop music; the fact that women dominate representation in pop would seem to suggest otherwise.

As evidenced by any number of tech innovations that introduce themselves through replicas of the female body and the disembodied voice—emotional support robots, sex robots, AI servants, Apple's "Siri," Amazon's "Alexa"—women are marketable as copies without originals, or what Jean Baudrillard famously termed simulacra.[18] As Julie Wosk covers in her book *My Fair Ladies: Female Robots, Androids, and Other Artificial Eves*, obsession with the male-created ideal female goes at least as far back as Ovid's Pygmalion myth.[19] As she shows, variations on the Pygmalion theme have hardly waned, and often

14. Adriana Cavarero, "Multiple Voices," Jonathan Sterne, ed., in *The Sound Studies Reader*. (Taylor and Francis 2012): 520, 524. "Song is more suited for the woman than for the man, above all because it is up to her to represent the sphere of the body as opposed to the more important realm of the spirit . . . Feminized from the start, the vocal aspect of speech and, furthermore, of song appear together as antagonistic elements in a rational, masculine sphere that centers itself, instead, on the semantic. To put it formulaically: woman sings, man thinks."

15. Ibid.

16. Ibid., 522.

17. In its current crisis state, the highest-selling records most often feature women. In the past five years only three pop records have sold more than 2 million copies, Taylor Swift's *1989* (Big Machine), released in 2014, Adele's *25* (Columbia), released in 2015, and Taylor Swift's 2017 *Reputation* (Big Machine).

18. Jean Baudrillard, *Simulacra and Simulation* (Ann Arbor: University of Michigan Press 1994).

19. Julie Wosk, *My Fair Ladies: Female Robots, Androids, and Other Artificial Eves* (New Brunswick: Rutgers University Press 2015).

adapt to and integrate the new technologies of the day, using "science and technology to help accomplish the same thing."[20] The "restoration" of a performance configured in Auto-Tune's patent[21] and reprised in many of my interviews quite directly suggests a copy with no original, a chimera of the body and its ideal.

Producer engineer Marty described pitch correction in this way:

> I call it a little nip and tuck. We refer to it as "putting on a little Hollywood." That's what we'll say, "You want a little Hollywood on this?" You go through and you say okay, which notes don't have to be perfect? But there's a lot of people who are afraid to let any note not be perfect. So now when you see shows like The Voice or American Idol, people will say, "Oh, she's out of tune!"[22]

The nips and tucks performed in the surgical process of pitch correction shore up a version of the perfected voice. And importantly, live performance, in Marty's description—and in myriad conversations I've had with listeners, students, academics and music industry professionals alike—remains the arena in which a vocalist's real skill might be tested and known. Most high-budget concerts employ Auto-Tune Live and a host of mediating technologies that make them otherwise unreliable sites of a performer's somehow "real" voice.[23] Yet in the live arena, women seem to be subject to greater punishment for falseness, taken to mean both accuracy of performed pitch and adherence to the sound of their voices on recordings. A host of women-focused isolated mic scandals and YouTube "real voice reveal" videos indicate this disparity.[24] The desire to discover the "real" voice behind the mirage of pop stardom is focused mainly on women, perhaps because concerns over female authenticity, reliability, and trueness are concerns that are familiar, with long histories related to worry over a woman's chastity and men's abilities to assess sexual purity. Men, by contrast are afforded alternate avenues to vocal authenticity, and for men there are different standards of "good" technique. Marty continued,

> Then you get other artists that don't have that luxury like [Bob] Dylan or Bruce [Springsteen] do. They're singing a more pop thing or a more smooth thing or a less 'let me tell you why I wrote this song.' And that model should still be, behind it all, believability. I mean when you talk about somebody like Christina Aguilera, when she

20. Ibid., 5.

21. "Pitch Detection and Intonation Correction Apparatus and Method" http://worldwide.espacenet.com/publicationDetails/description;jsessionid=F7EDC6ED5F25D5432EB0D4F2F4D56C01.espacenet_levelx_prod_2?CC=US&NR=5973252A&KC=A&FT=D&ND=1&date=19991026&DB=&locale=en_EP.

22. Marty, interview with the author, Los Angeles, California, September 2014.

23. For more on the status, mediation, and mediatization of liveness, see Philip Auslander, *Liveness: Performance in a Mediatized Culture*. (Routledge 2008). Anecdotally, in 2010 there was a wave of outrage over the exposed Live Auto-Tuning of British singing competition show The X Factor's final competition. This scandal, though, did not seem to register among audiences the capability and ubiquity of Auto-Tuning high-stakes live performance. Most people I've spoken with who are well aware of pitch correction and Auto-Tuning on recordings have no idea that Auto-Tune Live exists.

24. To list just a few: "Bad Singers - Real Voices/Without Autotune," 13 January 2018, https://www.youtube.com/watch?v=lOzThg5uFtI "famous singers ISOLATED vocals" 8 February 2017 https://www.youtube.com/watch?v=67w40m8_UyM "Famous Singers - Autotune VS Real Voices," 12 September 2017 https://www.youtube.com/watch?v=h4Cy9PYF3IE&index=2&list=RDlOzThg5uFtI

> sings a song like "Beautiful," you can tell she means it. Besides the vocal prowess she puts into it, you can tell she means it, and if she didn't it wouldn't have resonated with people.[25]

The luxury and looseness afforded to men is paralleled with a literal multiplication and tightening of women. Marty continued,

> I think [pitch correction] might have been used a lot more on pop women's voices, there's a lot of doubling in pop women's voices. And when I say pop women, I'm also saying the younger, the Hillary Duff type. There's a lot of doubling, there's doubling in the verse and then a lot of doubling in the chorus. A lot of that is so tuned, so instead of it being that loose '70s rock sound, it's so tight, those harmonies are clamped down, tuning-wise. And because of that you hear not the slide to the note, but it's like a fretted guitar![26]

The metaphors of doubling and tightening are poignantly transparent when read from a feminist standpoint. They echo standard patriarchal notions of male promiscuity and the insufficiency of a single woman's body, and the requirement that the female body, especially its genitals, be "tight." Tight multitudes of women—their voices as their bodies—are what allow rational, thinking men to feel anything at all.

In her essay "Toward A Feminist Epistemology of Sound," communication scholar Tara Rodgers examines the wave metaphor that coheres around the turn of the twentieth century, permeating understandings of and scientific approaches to sound. Rodgers notes that sound's "fluidity" suggests a female corporeality that becomes subjugated by scientific, colonialist, Western male subjectivity.[27] She states, "Sound waves, as fluid disturbances, are figurations of alterity and desire, and their management through technological control is a symbolic containment of gendered and racialized excess."[28] Voices are particularly rich sites of such excess not only because of the ways they are always already gendered and racialized, but also because, as musical instruments, they are wont to slide around and between rationalized pitches. Like soundwaves more generally, voices are unruly disruptions and sites of desire. One way to read pitch correction is through the lens of containment and control that tames the desire and the excess voices precipitate, a taming that often occurs non-consensually.

NON-CONSENSUAL TUNING

As I interviewed and spent time with workers, I was surprised to find out that tuning often happens outside of consultation with the artist. This occurs at several stages. First, some engineers choose to turn on pitch correction in the artist's headphones while tracking, so that she hears a tuned version of herself in real time. The singers feel like they are "superman," engineers say, which facilitates emotional delivery and session "flow." Singers

25. Marty, interview with the author. September 2014, Los Angeles, California.

26. Ibid.

27. Tara Rodgers, "Toward A Feminist Epistemology of Sound: Refiguring Waves in Audio-Technical Discourse," Mary Rawlinson, ed., in *Engaging the World: Thinking After Irigaray* (Albany: SUNY Press 2016), 196.

28. Ibid., 201.

are often none the wiser. Until, perhaps, their performances in the private space of the studio get leaked. As Fab recounted,

> Well yeah, the software takes over. For example those Britney Spears tracks? [The leaked tracks] I think that's grossly unfair. Because those tracks that are out where she sings so, so out, I guarantee you she had Auto-Tune on in her headphones. Guarantee you. She's not that out. She's okay. She can sing. She has a sound of her own, she has a personality of her own. Ke$ha is the same, and Katy Perry is the same, and those tracks when you hear them sing way off, like where it's not the right note, I guarantee you it's some disgruntled engineer leaking the not Auto-Tuned version of that singer singing while they were listening to Auto-Tune. I know that sound. I remember someone saying, "Dude! Listen to this track of J.Lo!," because I did the J.Lo record, "here's this track of J.Lo, she can't fucking sing!" And I'm like, that's bullshit, I know what that is. That's them vibing in the studio, that's them having Auto-Tune on because probably the engineer put it on without asking, and recorded the dry version. I know that sound.[29]

The non-consensual nature not only of the release of the rough recorded versions of Britney Spears's and J. Lo's singing, but also of the decision to tune in the first place, "without asking," summarizes the precarity of the female position in the creation of pop tracks. The imperative to look and sound right are coupled with an utter lack of control over how these standards are set. Articulating similarly questionable consent, label executive Simon noted that any industry professional singer has "been touched by Auto-Tune," though to make this point he listed only female performers,

> Selena Gomez, Demi Lovato, any of those girls, they all use Auto-Tune. They are decent vocalists. I mean, the other night on the AMAs, I don't know if you watched the American Music Awards, I don't know anyone on there, whether it's Taylor Swift, Selena Gomez, or Demi Lovato, who has not been touched by Auto-Tune. Producers just do it![30]

J.Lo, Britney Spears, Selena Gomez, Demi Lovato, Taylor Swift are, of course, superstars, but such precarity extends to other levels of female singers' participation in the industry. Tom recounted a dynamic he had with a professional studio backup singer and demo recorder with whom he had worked for years, a dynamic that changed when he started using pitch correction software:

29. Fab, interview with the author, October 2015, New York, New York. Fab elaborated further, "In those writing sessions, Auto-Tune is on, they sing through it. Yep! Most of the time, in real time, they sing through it. So it actually like helps them find melodies sometimes. And some writers insist on it being printed so nobody can hear how they sing without it. Because if you sing with it, even if you're Ella Fitzgerald, and somebody puts Auto-Tune in real time in your headphones, and records the non-tuned thing, you're gonna sound like a five-year-old on sugar. Because your brain can't process that fast, so you sing way out of tune, because your brain cannot adjust. Singing in tune is a feedback loop. If you analyze the pitch of people, it's never on, it always swoops in, because you sing a note and then you get to the note. How fast, what your consciousness and focus, and your experience and how fast your feedback loop is and conscious of yourself you are tells you how in tune you are. So if you're fed something that's not reality, your brain cannot adjust, so the best singers in the world, you put Auto-Tune in your headphones, and you have both ears of the headphones, and they will sing out of tune. They'll sing like people on talent shows where it's painful to watch."

30. Simon, interview with the author, October 2015, New York, New York.

> I had this woman who sang here forever who's brilliant and she's like, "no, never use Auto-Tune." So I remember she was singing a demo for somebody, and we'll always listen back to that vocal once we think we've got it, and she'll mark on the lyric sheet. So she comes out and she goes, I know these three lines for sure I'm going to have to fix, and she marked them. And we sit there and we play it back, and they sounded right. And she looks up at me and she goes [whispers] "thank you." After all the other, "I don't want to do it! Don't do it!"[31]

Less famous singers, too, whose genre might demand un-tuned authenticity, might also request not to be tuned. But their place on the periphery and their precarity in the music market give them less control in the face of industry demands. As producer/engineer Dave described,

> And then there are some performers who are totally paranoid about it where it's like, "no you can't tune my vocal!" And it's like, "okay, I won't tune your vocal." And you tune it, and they're like, "wow! I sound great!" And that's where it ends. I wouldn't say that it's like you're trying to do it under their nose, but it's like, *well, this is what you hired me for, you wanted to sound great, and that's what I'm trying to do*. I'm making it sound great, and I'm not gonna send it out before you've heard it, I want your seal of approval on it, but let me kind of do my thing and then tell me how much it bothers you.[32]

Audio engineering work, especially the work of pitch correction, is often precarious and underpaid, and as the italicized text emphasizes, many engineers feel an imperative to make the track sound as "good" as possible, whether or not this aligns with what the artist initially asked for. By making the recording "sound great," engineers are negotiating the hope that they will win future work, industry standards of "good" vocals, and the demands of the artist.

In other instances, the artist's "seal of approval" is something engineers might try to deceive the artist into giving. Martha, a Native American and African American singer, songwriter, composer, and former "ghost singer"[33] at Warner Chappell spoke with me about the process of recording her Appalachian roots album, *Garden of Love*, released in 2013.[34] When listening back to the studio recordings, she noticed her voice had been tuned. She hadn't asked for this, nor did she want it. She said to the producer, "It didn't sound like this when I left the studio, there's tuning all over it." He replied that no tuning had been performed, saying, "Of course you think that it's been tuned because you're the performer. What does your husband [Martha's husband is an audio engineer] think?" Over weeks of negotiation with the producer, he would not admit that the tracks had been tuned. She had to fire him from the project and hire a different engineer, who was able to undo the former engineer's tuning, though the former producer had instructed his engineer to flatten any evidence of it.

31. Tom, interview with the author, October 2014, Santa Monica, California.

32. Dave, interview with the author, October 2014, Los Angeles, California.

33. For more on ghost singing and pitch correction *avant la lettre*, see Catherine Provenzano "Emotional Signals: Digital Pitch Correction Software and the Meanings of Pop Music Voices," Ph.D. diss, New York University (2019).

34. Martha Redbone, *Garden of Love,* self-released (2013).

This was a risky and expensive move for Martha, but it was one she had enough power to make as the writer and owner of the songs, and because she had the technical knowledge to pick up on the producer's duplicity. She admits, though, that it is not always easy for female performers to be so assertive. In her view, studios are spaces where men have always enjoyed the most power and they have no incentive to give it up. More than this, because it is so often men who produce and engineer, this leaves both powerful and less powerful female artists at their mercy. "Don't piss him [the engineer, the producer] off," she advises young female artists, "because he will fuck up your sound."[35]

Although instances of tuning without asking could be read as servicing female performers, perhaps relieving them of some work and making them "sound great," or up to the standards of the pop market, I think they are more accurately read as exploitations of female labor and female bodies, and a subtle and slippery seizure of power over them. By deciding the versions of their voices that circulate to be sold, those with the decision-making and sound-molding power set standards and terms that become all but non-negotiable. They also position singing women as interchangeable, even the female performers at the very top. As Simon recounted:

> Let me give you a quick story. I worked for Disney for 14 years so I was there when Miley Cyrus went from being Hannah Montana to being Miley Cyrus. I was there when Lizzie McGuire became Hilary Duff. And again, at the time I remember my boss panicking, because Hilary Duff was in Lithuania at the time working on a movie. And he's like, I cannot get Hilary Duff to sing these three particular songs. And this was her first like real Hilary Duff record. And I joked with him, I said, "Look, you know," and he was freaking out, he was like, "I need to go to Lithuania, I need to get on a plane, I need to get these vocals." And I was like, "Why don't you just have somebody else sing it?" Meaning, there's nothing special about Hilary Duff's voice, it's not Shakira, it's not Beyoncé, it's not something that is so unbelievably true and real that you're like oh my god, that! You know who it is instantly. So unique, is what I mean. And by the way, to this day, he could have taken my advice for all I know. The truth is, there's nothing distinguishable about Hilary Duff's voice; she's actually not that great of a vocalist to be quite honest. So in that case it's a consumer product. So the teenager, or sorry the tween, rather, wants to buy the pillowcase, the lunchbox, the water bottle, and "oh my god! She has music?" It's like the fourth thing the consumer thinks about in that case. So whether or not she's a good vocalist is irrelevant. It's almost another product in their product line.[36]

In this story, Duff's voice is altogether interchangeable, as long as her body continues to represent the products of the many "ancillary revenue streams" associated with her stardom. And for those women whose voices are recognizable as products themselves (Beyoncé, Shakira), they must be so in ways that are "true and real." The supposed authenticity of such voices persists past pitch correction, or as engineer/producer Lars put it, "If I like the tone of their voice, that to me is more important than the tuning, because I can always fix the tuning, that's easy. Being a convincing vocalist is impossible!"[37]

35. Martha, interview with the author, April 2018, Brooklyn, New York.
36. Simon, Skype interview with the author, February 2014.
37. Pat, Interview with the author, October 2014, Hollywood, California.

Cases like these illustrate the ways singing is considered as outside of technical labor and instead as a "natural" bodily practice that needs refinement. In her discussion of 1960s girl groups and their undervalued (in terms of payment, prestige, and legal ownership) singing voices, Jaqueline Warwick forwards a Marxist feminist argument that reminds us, "the closer the connection between labor and the body, the more abject the worker."[38] But even, or especially, as the labor of singing is rationalized with digital tools like PCS, the work of the body (and implicitly, the woman) is regrounded in expectations of convincingness, realness, and other such attributes that emphasize the necessity of the singer's emotional, if not technical, labor.

In her essay "The Gender of Sound," Anne Carson writes of the virtue of *sophrosyne* and its emphasis on the control of one's sound: "Verbal continence is an essential feature of the masculine virtue of *sophrosyne* ('prudence, soundness of mind, moderation, temperance, self-control') that organizes most patriarchal thinking on ethical or emotional matters."[39] She notes that *sophrosyne* was just one of the qualities by which "Greek thinkers convinced themselves that women were of a different race than men."[40] Women lacked this virtue, and they were "bad to hear," constantly welling up with the sounds of hare-brained reasoning, or disruptively raw pain, pleasure, emotion.

It takes a great leap in time but almost no leap at all in concept to connect pitch correction and the body-governing idea of *sophrosyne*. Women sing and may even be prized for their "rawness" in doing so. But this rawness needs first to be refined, or it, too, will be bad to hear. Pitch correction softwares and the engineers who implement them act as a control point of male *sophrosyne*—passing the female voice from its raw, ungoverned state through the rational, emotionally savvy male virtue, enacted through technologies that dissociate and control sound. Carson elaborates, "It is a fundamental assumption of these gender stereotypes that a man in his proper condition of *sophrosyne* should be able to dissociate himself from his own emotions and so control their sound. It is a corollary assumption that man's proper civic responsibility towards woman is to control her sound for her insofar as she cannot control it herself."[41] Pitch correction reinforces the fantasy of the male subject's objective position because PCS are tools of precision, technologies of the scientific measuring and manipulation of pitch, that claim to make tuning "easy," i.e. certain, measured, and clear through the tool. And the material of women's voices is objectified not in a way that denies their emotionality, but rather in a way that augments the affects their voices might produce and preserves their voices as "convincing." This *intensification* of affect is increasingly subject to its rationalization and scientification.

38. Jacqueline Warwick, *Girl Groups, Girl Culture: Popular Music and Identity in the 1960s* (New York: Routledge 2007), 144.

39. Anne Carson, *Glass, Irony, and God*, (New York: New Directions Publishing 1992), 126.

40. Anne Carson, *Glass, Irony, and God*, (New York: New Directions Publishing 1992), 124. I am also grateful for the introduction to the concepts of sophrosyne, noise, and regulation from Robin James's colloquium presentation "Noisy Feminists, Neoliberal Sophrosyne & Lemonade's Demonic Calculus," New York University Music Department, 27 April 2016.

41. Anne Carson, *Glass, Irony, and God*, (New York: New Directions Publishing 1992) p. 127.

Cher's 1998 hit "Believe (Life After Love)"[42] was the first commercial hit to feature Auto-Tune used as an effect, but in the mainstream the association of TATE with women's voices did not persist much beyond the turn of the millennium. Throughout the aughts, artists working mostly in hip hop employed and solidified an alternative vocal affect through TATE, one that was technologically branded and embodied, likened to robotic dissociation, and heard as dripping with emotion from a software's distance. The effect was originally achieved by setting Auto-Tune's Retune Speed dial to zero milliseconds, creating a voice that moves to and from pitches faster than trained flesh can achieve. Since its first instantiation, creating TATE has undergone some refinement; engineers today will often tune a spoken/sung vocal to precise pitches in Melodyne, a different PCS, before running the tuned vocal through Auto-Tune and its "misused" speed dial.[43] The result is a combination of sustained pitches with very little drift and noise—the pitches' fundamental and formants are loud, clear, and concentrated—combined with a rapidness of movement between them, a result that emphasizes the digital "cleanness" of the vocal signal.

Variations on this vocality found articulations predominantly through black male performers, so much so that the "Auto-Tune Era" represented by the Apple playlist screenshot in Figure 2 implicitly sounded almost exclusively black male voices. In fact, since 1998, it has been exceedingly rare for a female pop or hip hop star to have a hit song on which her voice sounds technologically embodied in the way Cher's did the year of Auto-Tune's release.

Arguments and cultural symbolics that align Auto-Tune with contemporary black vocality often leave out the question of gender entirely, and the question of singing as gendered work. Alexander Weheliye has argued that, in its complicated relationship to hip hop, R&B becomes about the private, the intimate, the queered and the feminized.[44] He argues that the masculine abstraction of rapping contrasts the feminization of singing, and the sampling of black-women-delivered hooks serves to perform the emotional labor of which the male body is heard as less capable or fitting. But the Auto-Tuned voice, in particular in hip hop and R&B of the last decade, is a hybrid of the spoken and the sung that seems to do the intimate feminized work of the singing voice while still laying claim to the power and legitimacy of abstraction, masculinity, and technology.

In his book *Blackness and Value: Seeing Double*, theorist Lindon Barrett presents the ways in which singing and literacy are counterposed in Western thought and cultural practice. The singing voice has been a site of black cultural resistance and empowerment precisely because it reads as non-threatening in its meaninglessness by those who lay claim to the rational, meaning-laden signing voice. The signing voice is for those who are literate, and the singing voice is reserved for those who are not. Barrett summarizes, "In short,

42. Cher. "Believe (Life After Love)," Believe. Warner Brothers (1998).

43. Auto-Tune inventor Andy Hildebrand has lamented the ubiquitous and popular use of this setting, which he says he included "just for kicks" without imagining anyone would ever use it, let alone that his software would become famous for it. This setting, he says, is "what the rappers use," and has contributed to Auto-Tune's bad reputation.

44. Alexander Weheliye. Colloquium presentation at New York University, 25 January 2018. 'Scream my name like a protest': R&B as Sonic Sanctuary for Interiority and Femmeness in the Age of #blacklivesmatter."

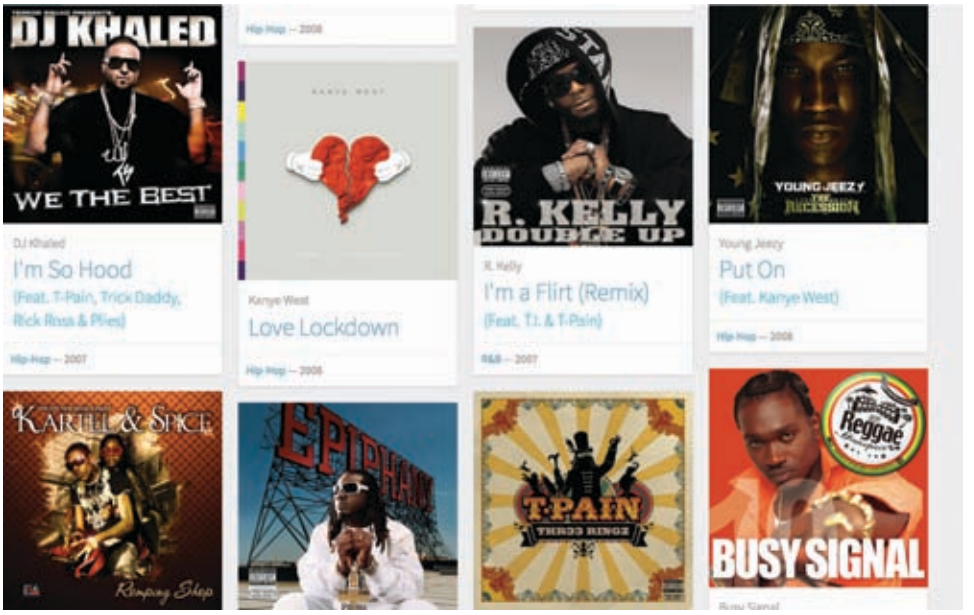

FIGURE 2. Screenshot of the Apple Music playlist "The Auto-Tune Era." The playlist features almost exclusively black male performers, except for one white woman, Ke$ha.

from the dominant vantage, the prioritized status given literacy in Western cultural practice provides the mark of meaningfulness in relation to which the singing voice takes on its characterization as frivolous at best and meaningless at worst."[45] Barrett traces this distinction through the long history of the middle passage and chattel slavery, giving an exhaustive documentary account of hearings of black voices and black music, arguing that "[t]he cultural site of the singing voice provides the ground for intimate acts of self-definition and for forging of reasoned relations to the world."[46]

Using Barrett's terms, the Auto-Tuned voice allows the voice at once to sing and sign. For people of color, the appeal to melody and lexicality simultaneously, an appeal that the Auto-Tuned voice emphasizes, might act as a point of resistance to the violence of everyday life, and to the violence of the unreasonable relations that enforce and sustain real-world oppression; On a smaller scale, the use of TATE vocality might act as a corrective to the white hegemonic idea that black people are "naturally" good singers with "innate" ability. Auto-Tuned vocality can be a catalyst of "intimate acts of self-definition"[47] that reject these tropes. Yet, as it has precipitated over the last two decades, TATE's potency seems also to do with harnessing the intensified affect of the sung while avoiding the risks or frivolity of singing's implied femininity.[48]

45. Lindon Barrett, Blackness and Value: Seeing Double. (Cambridge University Press 1999), 66.

46. Ibid., 59.

47. Ibid.

48. In her 2008 book *The Hip-Hop Wars*, Tricia Rose outlines the ways representations of masculinity in hip hop become crystalized and fetishized through problematic label and consumer demands that encourage what Rose calls the "gangsta-pimp-ho trinity." She describes how the lyrical themes of violating, assaulting, consuming, discarding,

Building on Barrett's and Weheliye's arguments, I propose that voices can index literacy (or lack thereof) as much by lexicality as via technology, and that degrees of technological indexicality relate to the work intersectionally gendered and racialized voices are not only expected but allowed to do. The acceptance and celebration of male artists who employ Auto-Tune for effect (e.g. Bon Iver, Daft Punk, Kanye West, Future), and the stark lack and/or demonization of female artists who do the same, speak to the ways the Auto-Tuned male voice is heard as technologically and emotionally literate, whereas in the popular imaginary, no such technological literacy is granted to women, though their pitch-corrected voices are still expected to sound "natural" emotionally.

There are some examples of female pop stars employing the Auto-Tune effect over the past twenty years; Cher, of course, Ke$ha's "Tik Tok," Taylor Swift's "Delicate," Katy Perry's "Mind Maze," Beyonce's "7/11," stand out as examples.[49] Though as I write, these examples are expanding, the availability of Auto-Tuned vocality to women in the mainstream has been slow to come. On the YouTube video listicle channel "Watch-Mojo," the video "Top 10 Artists Who Heavily Use Auto-Tune" published in 2018 comprises two white female performers (Cher and Ke$ha), two white male acts (Daft Punk and Bon Iver[50]) and six black male hip hop performers (will.i.am, Travis Scott, Kanye West, Future, Lil Wayne, and T-Pain). All of the black male performers are described in the video as using Auto-Tune to add "more emotion" to their songs. Ke$ha, who is described as "the pop queen of Auto-Tune," receives a different treatment. Her use of Auto-Tune, the video notes, has received "mixed reviews," and because "her electro-pop dance albums *Animal* and *Warrior* rely heavily on Auto-Tuned vocals and melodies, it's come to the point where many listeners have questioned her vocal abilities."[51] Ke$ha is the only artist in the list about whom the video raises this point. Meanwhile, male performers have succeeded, artistically and commercially, at employing the expressive range Auto-Tune promises without the nagging underlying question of their somehow actual ability.

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and oppressing women act to shore up fantasies of power that justifiably react to pervasive and structural stripping of power from the black community, but in which black women and their bodies furnish problematic and displaced sites of resistance. The use of black women as opposed to, say, white politicians, as pawns of this power, she argues, sits more comfortably with white consumer audiences, who implicitly regard black women as subhuman and feel unthreatened by their oppression, and perpetuate this cycle of representation by participating in the market for it. See also Mark Anthony Neal, *New Black Man* (2006).

49. Many of these songs are housed in albums that were billed as "reinventions" for the performers, a rebranding of their old selves, fashioned into new ones, or a rejection of the somehow coherent and singular understandings of their personas.

50. While it is possible that Bon Iver uses Auto-Tune as a production tool in some cases, his signature sound is actually achieved using a Prismizer, and its live-performance counterpart, The Messina. The effect is often misheard as Auto-Tune.

51. "Top Ten Artists who heavily use Auto-Tune" https://www.youtube.com/watch?v=PpxUyDOC2zE 18 February 2018. Ke$ha's singling out in this way and in these terms is additionally troubling light of her successful 2018 lawsuit against superstar pop producer Dr. Luke (Lukasz Sebastian Gottwald), to whom she was contracted through SONY records, and who, Ke$ha claimed and the court confirmed, emotionally and sexually abused her for years. Dr. Luke is otherwise notorious for his controlling, perfectionist ways and the ultimate submission he demands of the artists who work for him. Ke$ha was freed of her contract with Dr. Luke, and in 2018 put out her album, *Rainbow* (RCA), on which she leaves behind the Auto-Tune effect and explores other vocal techniques.

When veering away from the (for fifteen years quite hot but now cooling) authenticity debate about Auto-Tune, the popular and academic story of what Auto-Tune does for the voice goes something like this: it adds expression, sadness, melancholy, a way to express "pain and passion,"[52] a place to unveil "new depths"[53] of the voice. This discursive path in many ways veers directly into the authenticity politics thought to be left behind in the "did she, didn't she?" line of questioning by replacing the uncertainty around agency with an attempt to shore up expressive meaning and aesthetic value. And in almost all of the cases where the plumbing of vocal depths via Auto-Tune is said to be productive in this way, the voice being referred to is a male one.

In Chapter Seven of their book, *Digital Signatures: The Impact of Digitization on Popular Culture*, musicologists Ragnhild Brøvig-Hanssen and Anne Danielsen take on readings of the "Brokenhearted Androids" heard in Auto-Tuned voices. They listen to Bon Iver's (Justin Vernon's) "Woods," and Lady Gaga's "Starstruck," for the ways they employ the "robotic and non-human"[54] Auto-Tune sound. Starting with Vernon, they describe, "The autotuned calmness of Vernon's multiplied voice also contributes to evoking this sense of nature as perfection—that is to say, we hear nature as culture, or nature as a means of getting in touch with one's authentic self."[55] In this interpretation, Vernon's use of technology reveals the self that is really there.

Contrast this with their hearing of Lady Gaga: "When a voice is manipulated and takes on mechanical or robotic sound, this link to the 'real' self of the singer is broken. . . . Lady Gaga clearly uses denaturalization as a central strategy when commenting on her pop star persona. . . . When the vocal performance of an artist is staged as it is in Lady Gaga's 'Starstruck,' we have no voice that can supply a reference point against which the 'exterior' Gagas that we encounter in her music can be measured."[56] In an almost exact inversion, Lady Gaga is said to dissolve the "reference point" of her self, and assert that whatever the listener thought of that self was never really there to begin with.

Though not about Auto-Tune specifically, In her article "'Robo-Diva R&B,'" philosopher Robin James reads performances by Beyoncé and Rihanna as productive sites for considering the ways black femininity, as articulated in the "robo-diva" figure, "deconstructs" the values of "Anglo-American popular music aesthetics."[57] These performances—of the kind so often left out of discussions of Afro-Futurist resistance to white patriarchy—James

52. Edwin Ortiz. 2014. "The 10 Best Auto-Tune Songs of the Last Five Years," *Complex Magazine* 1 October 2014 https://www.complex.com/music/2014/10/10-best-auto-tune-rap-songs-of-the-last-five-years/ For academic examples of this argument see Ragnhild Brøvig-Hansen and Anne Danielsen, "Autotuned Voices: Alienation and Brokenhearted Androids," *Digital Signatures: The Impact of Digitization on Popular Culture* (Cambridge: The MIT Press 2017); and Miriama Young, *Singing the Body Electric: The Human Voice and Sound Technology* (New York: Routledge 2015). For further pop press articulations of it, see Sam Goldner. "In Defence of Auto-Tune," *The Dowser Online Magazine*. http://www.the-dowsers.com/playlist/defence-auto-tune/

53. http://www.the-dowsers.com/playlist/defence-auto-tune/

54. Ragnhild Brøvig-Hansen and Anne Danielsen, *Digital Signatures: The Impact of Digitization on Popular Culture* (Cambridge: The MIT Press 2017).

55. Ibid., 126.

56. Ibid., 128–30.

57. Robin James, "Robo-Diva R&B": Aesthetics, Politics, and Black Female Robots in Contemporary Popular Music," *Journal of Popular Music Studies* 20 (2009): 402–23. esp. 402.

argues, belong in the Afro-Futurist tradition, with the potential to add to it important and often ignored considerations of gender and black femininity.[58]

James hears and sees in Rihanna's performance of "Umbrella" (2007) and "S.O.S" (2001) examples of "robo-diva" potential, due importantly to the sound of Rihanna's voice. She notes, "Vocally, the timbre of her voice and her usually emotionless delivery render her sound quite similar to that of a vocoded voice—she is, in other words, a 'real, live' vocoder."[59] James conducts readings of the songs' video representations that she claims confirm a disruptive "robo-diva" aesthetic, noting metallic body paint, the "preindustrial cyborg technology" of toe-shoes, and a "futuristic, edgy haircut" as signifiers.

Alternatively, she reads Beyoncé's performance of "Get Me Bodied" at the 2007 BET Awards as "robo" through the robot costume she emerges from in the opening of the performance to render her more traditional vocality hardly meaningful.[60] She states, "Even though Beyoncé is, in traditional terms, an amazing once-in-a-generation vocal talent, this does not matter, nor does the ability to express emotion. The robo-diva could not care less about humanist aesthetic values because, among other reasons, she is grounded in inaccurate and disabling stereotypes about women and non-whites."[61] The robo-diva may not care about these values, but I would argue that in this 2007 performance, Beyoncé resists them not in spite but because of her "amazing" vocal talent. Her emotional expressivity takes on "disabling stereotypes" of the femme-coded, including singing, and dismantles them by asserting femme-ness onto the technological, instead of the other way around. In a sense, it is her very femme-ness that she forces male culture and what are always-already "its" technologies to worship and serve.

Bon Iver, Beyoncé, Rihanna and Lady Gaga are different artists with different genre affiliations, and these reads might make some amount of sense in light of the genre politics of folk pop (Bon Iver) mainstream pop (Beyoncé, Rihanna, Lady Gaga). But what I want to point out is how these interpretations are part of a greater trend of understanding male and female vocal and musical labor and its coherence with technology and feeling, both in scholarship and the popular press. I highlight these interpretations not to suggest that they are wrong, but rather to show how they fit a schematic of female vocal labor and what it is expected or allowed to provide. I summarize what they crystalize, in hopes of dissolving it: When used by women, the Auto-Tuned voice is made sense of as a way to critique expectations that the voice, and the pop performance of it, reveal something trustworthy, authentic or natural. And indeed, such a critique of these oppressive tropes of

58. James is responding most directly to Kodwo Eshun's 1998 text, *More Brilliant than the Sun* and its theorization of male Afro-Futurist performers and their resistance of the "classic 60s myth," especially as it plays out and persists musically, and its dogma of white hypermasculinity and authenticity.

59. Ibid., 414. James illustrates that Rihanna has been critiqued in the popular press for singing without "human emotion," and with a "mechanistic precision that rarely makes room for actual feelings to bulldoze their way through," (*Village Voice* review of Rihanna's "Rehab" by Tom Breihan, quoted in James). But it is perhaps worth noting that, in a decade of listening to Rihanna, it has never occurred to me that her voice is "similar to that of a vocoded voice," nor that it is emotionless.

60. Entire performance: "Beyoncé- Get Me Bodied (2007 BET Music Awards) (Feat Kelly Rowland, Mo'Nique, Solange)" https://vimeo.com/163762393

61. Robin James, "Robo-Diva R&B": Aesthetics, Politics, and Black Female Robots in Contemporary Popular Music," *Journal of Popular Music Studies* 20 (2009): 402–23, esp. 418.

narrowly defined womanhood may find powerful articulation in pop performance and vocalities that eschew rigid expectations of purity or even skill. But when read against the understandings of the male Auto-Tuned voice—those which celebrate it as a tool of "true" artistry through which the "real" self becomes apparent—we see how both understandings reproduce stubborn and fundamental categories of man/technology/culture and woman/flesh/body. In other words, when woman combines with technology, it represents some alter-ego, a challenge to the legibility of the self; when man combines with it, it represents the self, and perhaps one that is even more true and knowable than it ever could be without technology. Readings like this position technological alienation as essential to masculinity and as a (sometimes productive) affront to femininity.

Other recent readings of Auto-Tuned vocality skirt the (labor) politics of gender by appealing to the hope of the posthuman. In his book *Posthuman Rap*, Justin Adams Burton claims the Auto-Tuned voice, among a host of other musical features and sonic effects, is a marker of both posthumanity and sonic blackness, and one way to place oneself outside of "traditional symbolics"[62] of white, heteronormative patriarchy. He reads hip hop artists Juicy J and Rae Srummurd as resisting, through their vocalities and video performances, the "legible politics" espoused by political activist rappers such as Kendrick Lamar. Burton claims that this illegibility allows them to occupy postwork, posthuman, queered, and transed sonics and identities. Yet if we peer into the "posthuman" and "postwork" strip clubs of Rae Sremmurd and Juicy J's videos, which he claims exemplify this aesthetic, we find that they exploit, in fact rely on, female labor and worn tropes of heteronormative representation. In these clubs, the women are still working, and they are still, very much, human.[63]

One productive thing to come out of Burton's analysis is the way the Auto-Tuned voice might be thought of as an agent to place oneself outside the legible politics of both vocal skill and work. In conversation with the analysis I have offered thus far this idea of the non-working voice speaks also to a refusal of emotional labor pop stars are required to perform, which might be a powerful act of resistance in neoliberal capitalism that increasingly commodifies affect.[64] But this is a refusal, as I have shown, that is almost exclusively available to men. When scholars and music journalists describe Auto-Tuned male voices as sad, melancholy, or expressive, they also tend to attribute this emotionality to the mechanical labor of the software instead of the vulnerability of the male singer himself. The machine does the emotional work.

By contrast, female hip hop and R&B artists can't afford to quit. They keep working. For example, Beyoncé announces in her 2016 anthem "Formation" that the "best revenge is your paper," and one thing comes through loud and clear: she has to work, and to work she has to sing. Though in "Formation" Beyoncé only occasionally displays the vocal calisthenics for which she is famous and employs a low, crisp, gritty, slow rap to open the song,

62. Justin Adams Burton, *Posthuman Rap* (New York: Oxford University Press 2017), 9

63. I encourage the reader to watch the videos Burton references: "Juicy J - Bandz a Make Her Dance (Explicit) ft. Lil' Wayne, 2 Chainz" https://www.youtube.com/watch?v=AIogk2KJeho "Rae Sremmurd - Throw Sum Mo (Official) ft. Nicki Minaj, Young Thug" https://www.youtube.com/watch?v=fwrY0D2ACNk

64. Thrift 2005.

the rap sounds notably labored. She is working for every sound; she "grind[s] till [she] own[s] it."[65] And Cardi B, the breakout hip hop star of 2017 and former stripper who announces in her viral hit, "Bodak Yellow," "I don't dance now," and instead makes "money moves," does so without the Auto-Tune effect used by her male peers.[66]

Burton's reads of Juicy J and Rae Sremmurd as somehow "queered" and "transed" male rappers—who in fact capitalize on the female body in their "postwork" clubs, where women are constantly working— ignore the ways their heteronormative masculinity allows them to express, not least of all through their Auto-Tuned voices, how little they have to work.[67] Burton asserts to the reader that if at any point we think Juicy J and Rae Sremmurd are working, we should "look closer; they're actually still partying."[68] If men get to flaunt non-work, women have to work that much harder. Cardi B perhaps puts it best in "Bodak Yellow": "You in the club just to party/I'm there/I get paid a fee." Or, as Vanessa Grigoriadis wrote in *Rolling Stone* in 2018, her fiancé Offset of the group Migos summarized her hatred of a "pretend," "generic" Auto-Tuned voice; instead, in her voice "'she wants you to hear the struggle, so you feel it,' he says."[69]

What's more, if women are required to work and sound like they're working—vocally, emotionally, performatively—the structures of production vis-à-vis credits (producer/production/songwriting acknowledgment), royalties (publishing companies), ownership (labels, studios), and access to production tools favor a workforce of almost exclusively men who make money off their work. This might even extend to the work a performer is expected to have done before showing up in the studio. Freelance pop and hip hop engineer Arturo noticed in his own career the difference in working with male and female singers:

> When working with girls, I definitely use less tuning, like, they are better singers for sure. But working with males, they just want to sing, and I have to use more Auto-Tune, for sure. I've been working on some mixes [of female singers], and they just use some Melodyne every now and then, but then I've been working with male singers who are awful. Like they just sing and do whatever![70]

The technologically catalyzed vocal splits for women are theorized as allowing the performance of some "darker" alter-ego, and/or a space to parodize and resist the feminized, and inhabit off-limits sexuality (Britney Spears and Lady Gaga in Brøvig-Hansen and Danielsen, Rihanna in James.) But for men, the splits are theorized as speaking to the true nature of their emotional selves (Kanye West and Bon Iver in Brøvig-Hansen and Danielson, Juicy J and Rae Sremmurd in Burton); Auto-Tune acts as an instrument of rationalization—in both the sociological and mathematical senses—that makes male emotion

65. Beyoncé. "Formation" (Columbia 2016).

66. Cardi B, "Bodak Yellow" (WMG 2017).

67. The music industry realities for black male artists trying to maintain careers involve a no less than breakneck pace of production. Since 2015, Rae Sremmurd has released *SremmLife* (11 tracks), *SremmLife 2* (11 tracks), and triple-album *SR3MM* (27 tracks), and many of the top-selling hip-hop artists (e.g. Drake, Future, Travis Scott) put out mixtape after mixtape, album after album, at a pace of production that is almost unbelievable.

68. Justin Adams Burton, *Posthuman Rap* (New York: Oxford University Press 2017), 117

69. Vanessa Grigoriadis. "Cardi B and Offset: A Hip-Hop Love Story," *Rolling Stone Magazine*, 20 June 2018. https://www.rollingstone.com/music/music-features/cardi-b-and-offset-a-hip-hop-love-story-628750/

70. Arturo, Skype interview with the author, June 2018.

appropriate, even legible, as male. When used by male performers, Auto-Tune is understood as a tool of exteriorizing that which is "inner;" when used by female performers, Auto-Tune hides or splits the authentic self.

THE EMOTION OF AUTO-TUNING

In the *New York Times* in mid-2018, music critic Jon Pareles wrote of pop superstar Christina Aguilera's 2018 album *Liberation* (RCA),

> Top 10 pop — the realm where Ms. Aguilera has repeatedly proved herself since 'Genie in a Bottle' in 1999 — doesn't always reward big, natural voices as it once did, especially for singers who aren't named Adele. Auto-Tune; hip-hop; and the nasal, narcotized, dispirited voices of SoundCloud rap compete with, and often out-stream, the kind of soulful vocal storytelling that would have had Ms. Aguilera flourishing in previous eras. A voice like hers has become something like a turntable: a vintage prize, a modern novelty, a niche taste.[71]

In many ways, Pareles's summary of the shift in pop vocality over the last two decades captures something of a bigger shift: who sounds emotion (whether "dispirited" or "soulful") and how they sound it. It also points to the competition for which voices are fit to tell the stories.

In this article I argue that the split initiated by digital pitch correction of the labor of precise pitch from the labor of singing more generally leaves in its wake a redoubled emphasis on the supposed truth of emotional delivery. As my conversations with workers have indicated, emotion is presumed to be scarce and treasured—the thing that needs to be extracted from the singer, an extraction aided by software—while in the digital space the recorded voice enters, correct pitch is ready-to-hand, ready to be recombined with the singer's truthful delivery into something of maximum affective potency. The work of engineers is to keep legible and mystical singing's emotional realm by either taming its problematic non-normativity (putting pitches back in place but leaving the voice its "natural" sound), or by fashioning new sonic-emotional norms (using pitch-correction to announce the voice's explicit relationship to technology, relationships with new affective potential). As I have shown, female voices have been most subject to "taming," and are more often subject to standards of sounding "normal" and "unmediated," but still superhumanly "good" if they are to reach these affective heights. Meanwhile, male voices in pop are tools for fashioning new paradigms of sung emotionality, and often an emotionality that is audibly mediated through pitch correction software.

This portrait, these conditions, throw into question the liberatory potential of Donna Haraway's infamous cyborg. In the mainstream, the "cyborg" voice of pitch correction, as I have shown, largely belongs to men, not only in sound but in the writing of software and the work of enacting the softwares' implied ideology. Women, on the other hand,

71. Jon Pareles, "Christina Aguilera Exults in Her Voice on 'Liberation'" *The New York Times* 13 June 2018. https://www.nytimes.com/2018/06/13/arts/music/christina-aguilera-liberation-review.html

through this technology so often associated with the cyborg, become the archetypes of perfect communication, disciplined into the laws, codes, and formulae of divided labor and its scientification, patriarchally perfected in body and voice, revered as goddesses. This is not so much a critique of Haraway per se but rather an examination of the limits and mechanics of the pop-cyborg figure in light of the politics of the labor used to produce it. As Annie Goh argues, archeoacoustics and studies of the sonic past would do well to embrace Haraway's "feminist, anti-capitalist, anti-racists critiques of white, Western, masculinist technoscience."[72] If there is generative potential in the cyborg's "uncomfortable coupling" and the broken or uncertain boundary between human and machine, and if there are "possibilities inherent" in this breakdown[73] it is worth looking at the specifics of which possibilities are realized, heard, and listened to in the sonic present, to perhaps write a different sonic, material future. ■

72. Annie Goh, "Sounding Situated Knowledges: Echo in Archeoacoustics," *Parralax* 23:3 (2017), 283–304.

73. Donna Haraway, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century," in Simians, Cyborgs and Women: The Reinvention of Nature (New York: Routledge, 1991), 149–81

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