INTRODUCTION

You may not remember the first time you heard the query, or how many times you have heard it since: "If a tree falls in the forest and no one is there to hear it, does it make a sound?" Usually, people pose this conundrum to raise questions about reality and observation.[1] However, having mulled it over for quite some time, I think that the question's import lies elsewhere. If you were there in the forest, the sound of the falling tree might be one of your lesser concerns. Your attention might be drawn to the darkening of the sky as the great tree crashes down, filling your visual horizon. You might notice the eerie sounds of birds as they flee; perhaps you would squint as your eyes burned from the dust that whirled upward, saturating the air; or you might feel alarmed by the thump of the tree crashing to the ground through the branches of other trees, even bringing them down with it. You might simply be overwhelmed by the impact of the thump vibrating through your body. Conceiving of a falling tree as sound alone does not even begin to address the phenomena that are involved. The same applies to music, sound, singing, and listening.

For Clifford Geertz, an ethnographic scene deserves a "thick description" so that we can begin to tease out its intent and the meaning involved. Writing about an event so apparently unambiguous as the flick of an eye, Geertz distinguished between a wink, a twitch, and the imitation of a wink.[2] Analogously, just as an ethnographic interpretation might fail to take account of the local culture and context within which the event is taking place, interpreting a sense experience in terms of just one of the physical senses cannot take full account of the event's complexities.

The fact that the "thick" event of the falling tree elicits a question about sound may be instructive in multiple ways, speaking not only to issues in music discourse and scholarship but also to a broader tendency regarding complex sensory phenomena. The question concerning the tree, and the kinds of ques-

tions we ask concerning music, are symptomatic of a propensity to reduce thick events to manageable signifiers. On the one hand, this could be understood simply as a general cognitive strategy that enables us to deal with and move through a complex world. On the other hand, it is nevertheless important to be constantly aware of the ways in which shifting forces and dynamics of power inscribe themselves onto the perspectives and processes of this reduction.

Sonic reductions—that is, the tendency to constrain our understanding of sound through previously defined referents—arise from assumptions and values concerning the usefulness of sound in constructing meaning.[3] That is, we rely on the phenomena that we broadly conceptualize as *sound* to be stable, carrying out the work we need them to accomplish—for example, in something as commonplace as distinguishing between sound and noise, or sound and music, or noise and music. (In chapters 2, 3, and 4, I discuss in more detail the kinds of work that we rely on sound to carry out.) Certainty regarding a given sound and its meaning relies on the premise that a thick sonic event may be reduced to a static one, and in the process of this reduction we identify an object, a stable referent. As a result, the thick event of music is understood through restricted and fixed notions such as pitch, durational schemes, forms, genres, and so on—and thus the dynamic, multifaceted, and multisensorial phenomenon of sound is often reduced to something static, inflexible, limited, and monodimensional. Music, then, is most commonly experienced through tropes, or what I call the *figure of sound*.[4] With this term I attempt to capture the process of ossification, through which I argue that an ever-shifting, relationally dependent phenomenon comes to be perceived as a static object or incident. It is precisely because the figure of sound is, by definition, a naturalized concept that inquiries into voice and music, which are based on it, are similarly defined.

Through reconceptualizing the voice as an object of knowledge—and, relatedly, through investigating voice and music as intermaterial practices—we may begin to understand that voice and the states it has to offer are multifaceted and sometimes contradictory. Thus, I suggest that through the insights gleaned from taking the voice seriously as an object of knowledge, we may release music and sound from its containment within a limited set of senses and fixed meanings. Hence, music's ontological status can be changed from an external, knowable object to an unfolding phenomenon that arises through complex material interactions.

The methodological and theoretical implications of reconceptualizing the voice as an object of knowledge include considering singing, or other modes

of voicing, as primarily analytical issues from the perspective of verbs rather than nouns. That is, contra views of the voice as an aesthetic, technical, or definitional catalyst, I understand voice to offer an opportunity for questioning processes that help create and perpetuate the object and idea of voice. In this understanding, assumptions about the voice as a disembodied object, or as representing a universal body, no longer gain traction.[5] By maintaining that voice, listening, sound, and music are necessarily multisensory phenomena, and by grounding my investigation in pedagogical practices—in singing and listening bodies—I not only make full use of the lessons learned in the area of sound studies, but I also open up the discipline to a broader understanding of sound by asking fundamental questions about deeply ingrained notions surrounding its focus of study.[6]

Rather than reinforcing the figure of sound, I join a current swell of work that seeks to find the nuance in and question such notions.[7] More specifically, this book seeks to recover the dynamic, multisensorial phenomenon of music and to redirect thinking about sound as object, as with the figure of sound, toward a reconception of sound as event through the practice of vibration. I undertake this project not merely as a linguistic corrective. Rather, I believe that how we think about sound matters, and that reducing a dynamic and multisensory phenomenon to a static, monodimensional one has ramifications beyond our use of the concept and metaphor of the figure of sound. My concern is that this limiting conceptualization extends to and affects all who engage with it. That is, if we reduce and limit the world we inhabit, we reduce and limit ourselves.

My claim that singing and listening are better understood as intermaterial vibrational practices may appear as a form of radical materiality, as totalizing as other metaphysical claims about voice, including voice as logos, essence, or subjectivity. However, if there is a totalizing position, it is not located within the claim to materiality. The ultimate thrust of this study does not lie in redefining and revaluing sound, music, noise, or matter but concerns those who sing and listen, and those who are moved and defined through these practices.[8] Thus, if a totalitarian position is embraced, it must lie in the relational sphere. In other words, my desire to recover the thick event is fueled by the impulse to understand more about the integral part that music plays in how we forge our relations to one another.

The Music We Name

Rather than focusing solely on a phenomenon's ontological status, Geertz advised us to examine its import. He asked: "What is it, ridicule or challenge, irony or anger, snobbery or pride, that in their occurrence and through their anger, is getting said"?[9] Reducing the thick event of music to a singular sensory mode, aurality, is driven by the high value afforded to epistemology—how to know, based on the assumption that knowing is possible—within academia and beyond.

I offer three examples. First, the requirements for knowing a given phenomenon favor particular kinds of measurements and objects that are available to be measured. In music, examples that come to mind include the fixing of pitches, the setting of tempi (for example, through metronomes), and the fascination with music that falls into the Fibonacci sequence.[10] Second, in an effort to build up areas of expertise, the drive toward adherence to the fixed referent has maintained divisions of knowledge within academia. Academic departments each claim a single perceived sense as their domain: music has claimed audition, dance covers touch and movement, art and art history focus primarily on vision (although this has changed as artists have broadly challenged the confines of that domain), and so on. Interestingly, sound, visual, and sensory studies have recently complicated these traditional domains; indeed, *Sensing Sound* is enabled by these destabilizations. Because music's agreed-on sensory domain is audition, our vocabulary and orientation are therefore primarily attuned and confined to that domain.[11] Third, academia's call to teach within these values shapes the knowledge it produces and perpetuates. Perhaps precisely because of the difficulty of knowing within these rigid confines, there is a tendency to approach the material in a mode that seems possible given the limitations inherent in its definitions.

In a radio interview, the former poet laureate Billy Collins recently described a similar disposition within the teaching and knowledge production surrounding poetry:

> It's the emphasis on interpretation, to the detriment of the less teachable, maybe even more obvious or more [*sic*] bodily pleasures that poetry offers. But that mental and cerebral pleasure seems to be so dominant that it leaves out other pleasures. And the other pleasures are not so teachable, so they don't require the intervention of a teacher. The pleasure of rhythm. The pleasure of sound. The pleasure of metaphor. The pleasure of imaginative travel. All these pleasures that we experience in

> a gestalt fashion, you know, simultaneously as we experience a poem are difficult to discuss, really. So the emphasis tends to be on what does the poem mean?[12]

Applying Collins's insight to music scholarship and teaching, we might say that it is easier, or that it seems more scholarly, to talk about pitch, rhythm, form, historical context and debates, and meaning than it is to describe, for example, the feeling and effect of being transformed.[13] It is also easier to quantify such material than it is to convey its quality. Adherence to such values directly shapes musical discourse and teaching.

Thus we see that the analysis, interpretation, and definition of music reveal as much about ourselves (and, implicitly, about the era of which we are products) as about the music we name. That is, locating music in the musical work—which is, broadly speaking, the organization of sound—and concentrating our efforts on understanding this organization of sound might primarily yield information about an epistemological paradigm as opposed to ontology.[14] This position has been challenged. One notable example, of course, is Christopher Small's redefinition of *music* as *musicking*, a move designed to point to all people involved in music making and perceiving.[15]

The encompassing concept offered by Small's term is a model through which I begin to map the complexities of singing and listening. Similarly, the idea of transferring creative authority from composer to listener resonates with Peter Szendy's recent theory of listening as akin to "arrang[ing]" music.[16] As I have discussed elsewhere, thinking about music in this way even suggests a transfer of the privilege of authorship to the listener.[17] Furthermore, the music theorist Marion Guck put her finger on the same sore spot when she identified the false assumption that analyzing a musical work or its composer's intention alone can capture the musical experience: "As a theorist, taking listening rather than composing as an analytical focus means that who counts—the listener—is different from theory's usual orientation. What counts about the music is different, too. Since I am interested in what the listener—usually I—experience through the sounds, the point is not identifying configurations of notes but showing how my experiences are elicited by the ways in which the configurations come together for me and change me as I respond to it."[18] To advance the viability of the listener's self-inquiry as an analytical focus, we need to clarify who we are as listeners and, as such, what we can accomplish. In other words, to focus analytically on the listener allows us to read and interrogate the impact of a piece of music as it is experienced by a listener who is encultured in a given way.

Any "theory about the listener" (to invoke the subtitle from Theodor Adorno's controversial "On Popular Music") describes the results of a pedagogy arising from and representing a set of values that has produced that listening practice, rather than simply describing music lovers' "mass listening habits."[19] But it is not only in formal pedagogy (for instance, Heinrich Schenker's listening practice and that of the few composers he studied) that we can detect the underlying values that drive and direct listening perspectives today.[20] Every listening practice and its attendant theory arises from and reinforces a particular set of values.

For example, in his study of R. T. H. Laennec, who is credited with inventing the stethoscope, Jonathan Sterne observed that this technology and its allied listening practice initially developed out of restrictions, values, and attitudes related to class and gender, which called for a listening device that created physical distance between doctor and patient.[21] Jon Cruz observed that, in the abolitionist era, a listener's political position on the subjective potential of African American slaves could render the slaves' voices as either "alien noise" or "culturally expressive and performing subject[s]."[22] Both these examples speak to Mark Smith's observation that "sounds and their meanings are shaped by the cultural, economic, and political contexts in which they are produced and heard."[23] However, despite the varied nature of these observations and critiques, they all depend on one assumption that has not been fully addressed: the presumption that we can make observations, statements, and judgments about the sound of music.

In these pages I propose that sound, the narrow logic through which our concepts of music have been threaded and that lies at the center of music's definition, is merely a trope. It is an empty concept in which we have nonetheless so thoroughly invested that it has produced a kind of tunnel vision. We have taken on a stance that rejects any challenges to the a priori idea or to fixed knowledge.[24] While this assessment may be viewed as extreme, it follows from the assumption that music is a thick event. Understanding music as a figure of sound, I suggest, is merely one mode of thinking about the phenomenon. But this is an idea with enormous currency and seemingly unstoppable momentum. Not only does it shape how we discuss, conceive of, and analyze music, but it also determines the ways in which we imagine we can relate to music and the power we imagine it to wield in our lives. This shaping, in turn, influences how we configure our relationships to other humans through and with music. Indeed, the way we conceive of our relationship to music could productively be understood as an expression of how we conceive of our relationship to the world.

To be sure, in music we do experience something we call sound. However, I wish to emphasize that this is but one iteration of a phenomenon that may be defined much more deeply and broadly. While sound is a vibrational field to which we are particularly attuned, by no means does it define or limit our experience of music. Nonetheless, the conception of music as sound regularly perpetuates a host of assumptions, such as the notion that identity manifests itself through vocal timbre, a topic that I will discuss in chapter 3.

The result of the strong directing hand of the figure of sound is that when we identify and name sounds, we are not acting as free agents; instead, we are acted on. That is, because we have allowed music discourse to rely so strongly on the figure of sound, it pulls us toward certain ways of experiencing and naming sound and limits our access to other ways. As a consequence, we are not entirely free to experience sound idiosyncratically or to experiment unrestrictedly with that experience beyond agreed-on names and meanings. In fact, if such unbounded naming were carried out, the resulting definition of not only music but also sound itself might not fall under conventional notions of sound. For example, a given phenomenon is, under the figure of sound, understood as the spoken sound /b/ or /p/. In contrast, when released from the figure of sound, the same phenomenon may be understood as an event that, because of the amount of air it emits, has a greater or lesser impact on the skin.[25] Indeed, if the naming of a given phenomenon were uncoupled from the logic of the figure of sound, parameters that currently define this suite of phenomena might be considered not as fundamental, but as merely marginal.

My project arose from frustration with the ways in which, in contemporary musical discourse, we fall short in thinking and talking about (and in devising and interrogating performative and listening practices around) sound by relying largely on judgments about meaning and morality (for example, "she listens well" and "he listens poorly").[26] By critically assessing notions of sound as perceived through the lens of a meaning-making or sound-making source, I try to capture the ways in which a vibrational force is reduced to statements like "this is the sound of a trumpet" or "this is the sound of a black man," and I attempt to broaden such perspectives. Thus, beyond this volume, I envision a move toward analytical models that simply and elegantly challenge such reductions and their impacts.

Were *Sensing Sound* a historical study, my task would be to directly address how the vibrational material phenomenon, as I understand it, has been conceptualized, understood, and acted on in disparate geographical and historical contexts. While that undertaking would be fascinating, and perhaps one for a future date, what I offer here is rather a contribution to the contemporary de-

bate, in light of recent currents in opera, sound, and sensory studies concerning how to conceptualize and analyze some of the music that is performed and heard today by contemporary artists and audiences.[27]

Sensing Sound rejects the position that sound is a fixed entity and the idea that perceiving sounds depends on what we traditionally refer as the aural mode. This rejection triggers two pivotal questions. First, is the listener's or musician's awareness of and/or sensitivity to these multisensory sensations essential to this rejection and to a possible alternative position? (A related question is, would my argument need adjustment depending on the answer to this question?) Second, does my reframing of sound apply only to the particular and extreme repertoire treated here? For me, the answer to both of these questions is a resounding *no*! The observations gathered here reveal that, indeed, most people are unaware of the sensations or modes of what we refer to as sound and music. Common musical discourses tend to steer perception and analysis toward particular experiences—especially toward the auditory mode. I do not, however, invoke a Cageian move toward listening to all sounds, including the sound of silence, and the aesthetics of panaurality.[28] On the contrary, I maintain that not only aurality but also tactile, spatial, physical, material, and vibrational sensations are at the core of all music. Because the figure of sound produces a listening practice and a subject position that can perceive only within that mode, it is challenging to imagine anything outside it. Therefore, it is within these limits that I found my case studies.

Music's Naturalized Cornerstones

Given that the fundamental concepts and vocabulary which we use routinely in making sense of music are thoroughly naturalized, how can we possibly think and experience beyond them? The performance studies theorist José Esteban Muñoz introduced a useful analytical tool for envisioning ways in which the essentialized body and, by extension, the essentialized voice may rewrite or decode itself. This model has been useful in my efforts to think about extra-paradigmatic experience. Building on the cultural theorist Stuart Hall's encoding or decoding modes, Muñoz defined "disidentification" as "a hermeneutic, a process of production, and a mode of performance."[29] Muñoz likened disidentification to what Hall defines as the third and final mode of decoding, in which meanings are unpacked for the purpose of dismantling dominant codes to resist, demystify, and deconstruct readings suggested by the dominant culture—that is, as an oppositional reception. Disidentification, according to Muñoz, is

an "ambivalent modality," the minority spectator's survival strategy that "resist[s] and confound[s] socially prescriptive patterns of identification."[30]

Disidentification, which Muñoz exemplified through readings of drag performances with explicit racial references, is thus a performative stance undertaken with deep knowledge of essentialized subject positions. Through the rewriting, decoding, or double performance of such subject positions, the unspoken values that provide the contours, akin to unerased text, may surface; quotation marks appear around the essentialized subject position. Through purposeful foregrounding of the text layered through a series of rewritings, these meanings no longer simply hover in the background, passively confirming what was thought to be the subject's essential truth. Instead they are materialized and externalized, and through this process we are finally able to acknowledge them. Moreover, it is by first acknowledging the overarching a priori framework through which the world is comprehended that we can recognize both essentialized subject positions and naturalized notions of sound, and their mutually reinforcing effects.

While I am indebted to Hall's and Muñoz's powerful work, I also recognize that their interventions (like most scholarship on race) remain within an orbit wherein signs and signifieds are relied on in social transactions. In essence, they critique the power and effects of signs when used or interpreted unjustly. However, both the critique and the solution they provide are spun from, and limited to, the figure of sound's centrifugal logic. And it is with this logic—instrumentalized through its agreed-on parameters—that music's naturalized cornerstones are laid and cemented. The figure of sound has been so thoroughly naturalized that our belief in its certainty is akin to our reliance on gravitational force.

I hope that this book will offer a convincing "yes" to a vibrational theory of music (and to a subsumption of sound under vibration) and to an alternative analytical framework to that offered by the figure of sound. In grappling with contemporary vocal performances that do not yield to analytical frameworks premised on the figure of sound, I was emboldened to think about naturalized notions in music in new ways. Rather than rejecting them as nonsensical, which was admittedly my first instinct, I needed to allow the performances themselves to show me how to approach them. The performances had proved unyielding to familiar analytical frameworks not because they had failed in an a priori way, but because those techniques of analysis available to me had been created to understand particular music—music built on a different premise than the performances I had at hand.

Viewing music in this way carries some unsettling consequences. First, it suggests that traditional approaches constrain our understanding rather than expanding it. Second, it asks that people who interact with, are touched by, and seek to understand music approach an artificially bounded experience without that familiar scaffolding. It asks anyone seeking to understand music to let go of the safety net of assumed certainty that is offered by reliance on musical parameters and concepts, and instead to enter the apparent chaos that follows the rejection of preconceived categories.

If this was the sole effect of a vibrational theory of music, its disruptions would be destructive. But approaching music as a vibrational practice offers much more: it recognizes, and hence encourages, idiosyncratic experiences of and with music. Furthermore, approaching music in this way takes into account its nonfixity and recognizes that it always comes into being through an unfolding and dynamic material set of relations.

Therefore, though unsettling at first, augmenting or replacing fixed musical categories (and their attendant parameters, endowed with value by a given culturally and historically specific situation) offers an opening. It enables us to recognize our interaction with and participation in music, and our interaction with and participation in the world, in ways that we have always intuitively recognized and always strongly felt, but that we were seldom empowered (or encouraged) to articulate.

It bears mentioning that a license to take the materially and vibrationally specific experience—the thick event—as a starting point is the opposite of self-centeredness. Taking vibrational practice as a basis for knowledge building around music's ontology and epistemology turns our attention from the categorical correctness or incorrectness of a given description of music to the ever-changing relations that constitute music. As in deconstruction's signifying chain, the final meaning in vibrational practice is endlessly deferred. Moreover, by recognizing vibrational practice or the thick event as ground zero, we are reminded to note and articulate our experiences of music in ways that always keep in sight, and in ear, the ethical dimensions of sound, music, singing, and listening.[31]

To fairly consider the performances at hand, I engaged themes both central and peripheral to the musicological debate. As a result, by adding multisensory and material considerations to the powerful and effective work of Hall, Muñoz, and others, I approach what we have traditionally conceived as sound from six interrelated transdisciplinary concerns: the body, the sensory complex, the sound, the (performative and experiential) methodological orientation, the analytical orientation, and the metaphysical.

I approach the body in and as performance, and as it manifests itself to us as a result of cultural construction and habituation. I consider the sensory complex of voice, sound, and music with similar mindful attention to the ways in which that complex by definition is culturally structured. And I keep in mind that any information we might glean through the sensory complex is thus shaped. This perspective leads me to interrogate the culturally informed parameters of sound on which we rely. That is, does any music exist prior to and independent of that which a culturally structured and informed sensory complex gives rise to, delivers, and verifies? Or—as the question of the falling tree's sound suggests—is the music we can sense in any given cultural moment merely a reflection (or indeed a confirmation) of our limited ability to perceive that moment?[32] The process of responding to these questions led me to interrogate musicological cornerstones: musical parameters, methodologies, and analysis.

I also interrogate one of music's fundamental parameters: sound. I do this because the traditional understanding isolates sound from the thick event of music—a parameter from which we believe we can derive knowledge of music and its effects. In so doing, I retreat from the assumption that music lies uniquely in the sphere of sound. Taking that assumption seriously, I pay close attention to the gradations and impacts of vibration (as in sound), transmission (as in intermaterial flow), and transduction (as in conversion of wave form from, say, mechanical to electric) within historical and theoretical discourse. My study relies on a methodological orientation which arose from a concern that I was trapped within my vocal training's culturally and historically shaped and informed perceptual structures. Hence my methodological orientation includes attempts to disrupt said sensory complex by working through vocal and listening practices that explicitly refuse to concern themselves with sound making or conventional aural-oriented listening. Moreover, I turn my attention to the question and issue of analysis, specifically to self-consciously interrogating where we direct our analytical focus and with which methods we decipher our material. I also note that the metaphysical assumptions at the base of musical inquiry arise in relation to questions about music's materiality or ineffability. Finally, I should mention that, as my references to Hall and Muñoz have suggested, my grounding orientation is informed by some of the critical perspectives and insights offered by scholarship on race and gender.[33]

My methodological orientation, then, is based on the premises that, on the one hand, dominant concepts are (silently) instilled in the human body and that, on the other hand, by testing a concept through its use in teaching, the concept's (unintended) consequences may be revealed. By following singers

who sing in ways or locations that do not fit into the dominant concepts of singing, we can begin to sense the outlines of these dominant concepts—which, precisely because of their dominance, are naturalized under more normal circumstances, and hence are beyond the purview of our critical and analytical focus.

Thus I investigate underwater singing and singing that does not engage the vocal cords, in both theoretical and participatory modes. To interrogate the possible connections between the practice of singing and the concept of the figure of sound, I follow that concept into the vocal instruction studio. In doing so I can ask: When we use the concept of the figure of sound, how does a body that is poised to make sounds react? Furthermore, what does the result tell us about the viability of the concept? I can also play with, and test, other concepts of voice and sound. The comparative results are concrete, presented in terms of how a voice student feels and performs based on the two types of instruction.

I build on scholarship that has made great strides toward a thorough consideration of the body's role in musical experience.[34] To summarize, I think about this work as having two variants that attempt to accomplish separate yet interrelated goals. One variant mines the body as a site for valuable information regarding the composition or performance situation and how the corporeal cultural formation and general environment (what is allowed and not allowed in terms of the body) informs what seems available as compositional and performative possibilities. Another variant largely consists of work by scholars who were trained outside musicology, but who are nevertheless serious scholars of sound. The latter considers how the full spectrum of sensory experience contributes to our interpretation of sound and music. Less has been done in this area of research to address the musical repertoire in particular.[35]

I have found it useful to think about the body within the realm of sensory studies and material scholarship. To me, this perspective removes perceived barriers between music scholarship and the sciences and medicine. It does not distinguish between production and perception but sees them as creating each other. The title of Jody Kreiman's and Diana Sidtis's groundbreaking book, *Foundations of Voice Studies: An Interdisciplinary Approach to Voice Production and Perception*, articulates this cocreating dynamic. The authors recognize that the analytical object that comes into relief is a direct consequence of the way in which it is processed by our culturally formed sensory complex. Consequently, an analysis of voice cannot concern only the so-called object but must also include the process that defines and recognizes it as such. Thus, the sensory and the material go hand in hand. Expanding our tool kit of perspectives to include

select aspects of what the sciences and medicine can offer moves us closer to understanding voice, sound, and music and the sense we make of them.

A major aspiration for this project is to suggest a framework for, and offer an example of, analysis of voice and music that takes its analytical cues from the vocal and musical event at hand, rather than from a music-analytical framework developed with a particular repertoire (and different goals) in mind.[36] Applying these interlocking and mutually fulfilling perspectives, I take inspiration from scholars who engage in microhistories (that is, in-depth historical work on limited repertoires), and I adapt such a detailed approach to a close analysis of previously excluded factors. Hence, my analytical orientation takes the form of extending methods and strategies from sound studies and sensory studies and applying them to issues arising in contemporary opera studies, contemporary music, and the emerging discipline of voice studies. Examining aspects of the vocal or musical event beyond the normalized parameters of traditional music analysis, I extend perspectives offered by sound and sensory studies to the multivalent, simultaneous, nuanced processes and effects of lived music. When I consider the shared sensory activities of singing and listening, my emphasis is on microanalysis.

This level of analysis shifts the focus on music to a finer-grained level than that of pitch, rhythm, form, and other commonly considered musical parameters, and I find that this approach resonates with aspects of Carolyn Abbate's work. Drawing on Vladimir Jankélévitch, Abbate argues that "music's effects upon performers and listeners can be devastating, physically brutal, mysterious, erotic, moving, boring, pleasing, enervating, or uncomfortable, generally embarrassing, subjective, and resistant to the gnostic."[37] In other words, our actual experience with music is experienced rather than reasoned and interpreted; "drastic," rather than "gnostic." However, my response to the drastic versus gnostic dilemma to which she calls attention is, first, to develop a critical framework for dealing with the so-called drastic aspects, especially one that seeks to tease out the naturalized notions through which we understand sound.[38] Second, I argue explicitly that we can—in fact, we have a responsibility to—attempt to understand the drastic in organized analytical terms, and indeed in its entanglement with the terms set by the gnostic.

In so doing, I draw on models developed by scholars who traverse the terrain of music, sound, technology, media, and the senses. For example, Martha Feldman's work on the castrato voice and Emily Dolan's work on orchestral timbre have already begun forging lines of inquiry about the coupling of shifting aesthetic sensibilities with the onset of new technologies, medical or otherwise.[39] And scholars working on issues of technology and disability have, by

necessity, had to consider the intersection of dominant material structures of perception and technological invention.

Mara Mills's historical work on the question of media, the telephone, and deaf culture cannot but tell a story about the perceived limits and ideals of the sensory complex, and about the material implements created to bridge such imagined shortcomings.[40] Veit Erlmann's historical work on modern aurality suggests that, historically, a particular type of epistemology has defined reason in direct opposition to resonance.[41] Along the same lines is Joseph Auner's work on musical modernism in the first half of the twentieth century, as marked by the sensitivity of the "phonometrograph"—Eric Satie's term for "weigh[ing] and measur[ing]"—that is, modernist sensibilities indelibly created by "ears and minds remade by recording, phonography, player pianos, and the burgeoning science of sound."[42] Furthermore, Alain Corbin's influential work on nineteenth-century French village bells and the ways in which their physicality (including patrons' inscriptions) and sonic reach was an intimate part of villagers' interpretation of their sound has been a crucial model of a powerful analysis.[43]

Building on these and additional important perspectives from disability and media studies, history, and musicology, my approach differs from the majority of items in the current onslaught of work by new materialists in that I take a stance on the lived material body, and that my primary motivation is to learn about the material relational dynamics gleaned from feminist and race studies.[44] But, when I lean toward a material approach that takes into account material's vibration, I take my strongest cues from scholars such as Elisabeth Le Guin, with her dedication to "cello-and-bow thinking," James Davies's "avowedly *realist*" stance on the question of how "music acts in the cultivation of bodies," and Peter Lunenfeld's commitment to "maker's discourse" when thinking through digital and media practices.[45] My perspective and motivation are informed by my practice as a classically trained singer who has worked in close musical collaboration with composers as well as in improvisational settings. My thinking has also been informed by the contradictory ways my voice has been read, depending on whether the listener has access to visual (Korean) or sonic (Scandinavian accent) cues. Furthermore, my many years of learning about voice and listening to voice as a voice teacher have left indelible imprints on my theoretical orientation. In my experience, nothing forces me to come to clarity about a given topic, concept, or practice like having to articulate it in teaching.

Additionally, given that most of the vocal apparatus is hidden from the naked eye and that most vocal mechanisms are comprised of involuntary functions

also used for basic survival (such as breathing), teaching voice is a notoriously elusive and challenging craft.[46] Hence, echoing the saying, you learn what you teach, my litmus test in regard to my knowledge about voice is whether or not, as a voice teacher, I can help a person use his or her voice in a way that person would like to. In large part, what I know about voice and listening, and what I employ in my theorizing, is drawn directly from this experimental and experiential practice.[47] Therefore, while the position communicated herein is in intimate dialogue with and irreversibly influenced by theoretical perspectives, it has first and foremost been developed through my experience as a teacher and student of voice, and as a student of listening and human relations. I think about this through the Norwegian term, *håndarbeid* (meaning the work of the hand)—a practice and concept that can broadly be translated as the domain of doing.

Finally, the entirely unintended theoretical implications of this project result in a strong position vis-à-vis the metaphysics of music. In this way, I partake in the conversation begun in the 1980s when musicology underwent a tectonic shift with the onset of scholarship that self-consciously sought to inquire beyond positivistic values into music. In Susan McClary's words, positivistic scholarship was limited in its understanding music as "a medium that participates in social formation by influencing the ways we perceive our feelings, our bodies, our desires, our very subjectivities—even if it does so surreptitiously, without most of us knowing how."[48] Integral to that new conversation was Small's notion of "musicking," a concept that has become key to analyses of musical life and that, as mentioned earlier, has influenced my own thinking tremendously.

Learning from Small and others, we might think about the question of the falling tree by considering the community that planted the forest and that community's needs and hopes for that plot of land and what it yields. We might consider too the dynamics among the different social, cultural, and economic circumstances represented by the people who come together around the land—for example, farm workers in relation to forest rangers, and forest rangers in relation to those using the forest for recreation. We might ask questions about their varying aspirations and their social and aesthetic needs and desires. New musicology's perspective offers invaluable access to social, class, cultural, gendered, and economic dynamics.

Small's project of rethinking the social dynamics of music through the concept of musicking may have its parallel in thinking about music and sound as the transmission of energy through and across material. While Small expanded the discussion from music as a "thing" to music as an "activity, something that

people do," including perspectives from sound, sensory, and material studies, I pay attention to the microscopic material transformations that music helps to usher into reality.[49] And as Small's definition of music put the social at the hub, I hope that this discussion can expand the conversation further, from thinking about music as a knowable aesthetic object to thinking about it as transferable energy.[50] *Transferable energy* here denotes energy pulsating through and across material and transforming as it adapts to and takes on various material qualities; it is at the crux of thinking about music in the dimensions of nodes of transmission and vibrational realizations in material-specific and dynamic contexts.

Situated within musicology and its intellectual trajectory, I have found that the concept of vibration, considered in a musical context, is useful when putting cross-disciplinary bodies of knowledge in dialogue.[51] While the concept of the figure of sound represents a disregarding of areas of knowledge that fail to fit within prescribed frameworks, vibration provides a route for thinking about fluidity and distribution that does not distinguish between or across media, and a portal for communicating beyond physical boundaries. For example, the political scientist Jane Bennett relied on an obscure treatise on music in developing her arguments for the "political ecology of things" and the "active participation of non-human forces in events."[52] Toward that end, she theorized a "vital materiality" running through and across bodies, both human and nonhuman.[53] Like Bennett, I am concerned with the material relationship between humans and things, for which the practice of vibration is both metaphor and concrete manifestation. And I see music not as a novel example of vibration, but as an everyday example of that tangible, material relationship, akin to tree leaves' movements manifesting the wind.

Music as Nodes in a Chain of Transmission and Transduction

Thinking about music through the practice of vibration brings up the limitations of the paradigm of music as sound, as articulated by Rebecca Lippman, a participant in one of my graduate seminars: "But if we think about this phenomenon as vibration, where does vibration begin and where does it end?"[54] With this question, Lippman encapsulated the limitations of our conceptualization of music when we operate with naturalized notions: the set of questions and observations central—perhaps native—to one paradigm often seem foreign and irrelevant to another. For example, within one paradigm we would consider a certain phenomenon to be sound and see it as bounded and knowable, with a distinct beginning and end. Yet within a different paradigm we

would see the same phenomenon as vibration and understand it in the terms of the energy in a body's mass and its transmission, transduction, and transformation through different materials.[55] Furthermore, while the first paradigm includes parameters, such as duration, that specifically imply beginnings and endings, these parameters—duration, in particular—are less relevant in the second framework. Within that framework, relevant information comes from inquiries into the relationships between materials and sensations, indeed between the bodies involved. Each paradigm has its own logic, and the parameters and questions that yield knowledge in one are not necessarily productive in the other. Let's compare the two frameworks:

Figure of sound	Practice of vibration
— Remains the same independent of listener (fixed)	— Shifts according to listener (relational)
— Circumscribed	— Always present
— Defined a priori	— No a priori definition
— Original; copy	— No assumed original; no copy
— Judged according to fidelity to source	— Nodes of transmission observed
— Static	— Dynamic

The figure of sound is an entity whose existence depends on an objective measurement. For instance, sound as a figure demands a concrete definition on a larger scale of bounded territory, as does the ground in a figure-ground relationship. If the smaller scale is, for example, pitch, the bounded territory is song. Vibrations, however, are unbounded: their relations are defined by process, articulation, and change across material. In this paradigm, then, the phenomena that we conventionally recognize as notes making up songs cannot be limited to particular renditions or articulations. What we observe and label as sounds in the figure of sound framework are considered simply as different points of transmissions in the practice of vibration framework. If singing and listening both constitute the process of vibration across material, they are always present—or, more correctly, always occurring. In short, listening to, making, and manifesting music is a vibrational practice.

From the perspective of this practice, it is the impetus, the urge, and the rush to action—indeed, the vibrations that this presonic activity puts forth—that make up singing and music making. In other words, sound is created and shaped in the action and transmission of vibration, millisecond to millisecond. A person's body is also conditioned, shaped, and created within that time-

frame, and the sounds it can produce are determined—and limited only—by the range of action and material transmission. That is, we participate in the points of transmission: for each of us, there is no knowable music or sound before its singular transmission through us. While each iteration is unique, we exist as a sine qua non, and the vibrational energy exists prior to the particular transmission.

This completely contradicts the figure of sound's drive to define sound according to an original, and to apply the question of fidelity to a source. Furthermore, without a drive to identify an object, or sound bounded by a beginning and an end, there is no assumed original with which to compare and against which to measure a given figure of sound's relationship and potential legitimacy. The evaluation of fidelity assumes a static object, which is examined to determine its relative loyalty and similarity to the source; in contrast, the practice of vibration assumes a dynamic, shifting process of transmission.[56] In other words, when there is no assumed fixed object, the need to establish relative fidelity to a static definition evaporates.

As Lippman's question reveals, the figure of sound paradigm assumes that knowable and measurable things form the basis of music. A considerable amount of music analysis derives its main energy from defining these objective elements and naming their relationships and structures. While we understand that defining pitches within scalar systems is contextually dependent within a particular discourse about a musical system, we accept that a given analysis and its attendant listening practice and judgment do not question the basic building blocks of the analysis (for example, pitch). Within the sound paradigm, a given pitch operates as a stable index or signifier. While a range of values and beliefs is tied to the signifier's assumed relation to a given sound, this framework impels us toward recognizing a given iteration's fixed relationship a priori.[57]

This plays out dramatically in music: a given epistemic framework developed through a cultural system enables us to recognize and name, say, a G#. In other words, G# is historically situated within a chromatic, tempered scalar system that is culturally bound to the Western tonal system. Recognizing the vibration that we name G# also assumes recognition of the system within which G# is situated, including a number of possible systems—for instance, the assumption that it is part of the E-major scale but that it would be a foreign note (indeed, the tritone) in a D-major scale. Recognizing G# also leaves out the possibility that these vibrations play a part in other musical systems that would not recognize them as G#.

However, the paradigm of the figure of sound does not stop with the drive to

know and identify a pitched sound as the second scale degree of F# major: it is bound up in the assumed meaning of this identity, and it is often derived from values and assumptions about identity that are deciphered from visual clues.[58] The figure of sound paradigm so structures listening to voices that it can lead to appraisals such as "this is the sound of a woman's voice." This appraisal is based on perceived similarities and dissimiliarities between one sound and another—in this case, on similarities to other human vocal sounds and on dissimilarities to, specifically, men's and children's voices.[59] By assuming an essential tie between a vocal timbre and a given definition of race, this paradigm can also lead to observations that are loaded with a presumption, such as the voice "sounded as if it was of a male black."[60] Listening to voices through the framework of sound can also carry multiple layers of appraisal: for example, the observation that somebody is "talk[ing] white."[61] This judgment has at least two layers: the idea of "talking white" assumes that the speaker is not white, and that the unexpected racialized vocal style is relevant only because of that assumption. (Just as the designation G# can be applied in relation to many different scale systems, the observation that a person is "talking white" can be applied against a backdrop of a number of different racial classification systems.)

Ultimately, the figure of sound reduces sound's being and its attendant listening practices to sound's relative relation to a range of a priori ideas of sound. It also reduces the listener. In this dynamic, the listener's main task is to name the relationship between figure and ground: the task revolves around determining a sound's faithfulness to a given set of assumptions. Here, being faithful entails such virtues as being in tune and conveying the a priori intent and meaning of a particular sound, composition, or musical-cultural tradition. From the assumption of a defined, nameable, and knowable sound follows an assumption of fidelity, and a perceived moral obligation to consider each sound in its fidelity to that a priori. Robert Fink aptly describes these two processes as "listening through" a sound versus "listening to" that sound (for itself).[62] In other words, this model rests on the assumption that, in the meeting between a sound, a voice, and a music, the respectful, responsible, and ethical way to relate to the sound, voice, or music is through the capacity to recognize it and know it.

The practice of vibration, in contrast, relates a sound not to an a priori definition but to transmission. Because propagation is never static and, as a series of continually unfolding transmissions, is not a matter of recognition and naming, the notion of fidelity accompanying the figure of sound is undermined. If there is nothing to which sound must remain loyal, the notion of fidelity does not retain its currency. Then, rather than limiting our conception of singing

to the task of replicating an ideal sound, we might grow comfortable with the notion that human existence and the activity that flows from a human being necessarily constitute a song. Singing beyond the "shadow" of the figure of sound then moves away from forcing us to mold our bodies to create an expected sound, and toward accepting the vibrations that pulsate from our material, sonorous beings.[63]

Before discussing the larger ramification of this modulation from the figure of sound to the practice of vibration, I should stress that I do not elevate vibration merely in an effort to move away from a perceived linguistic hegemony based on the figure of sound. My approach to the consideration of music as a practice of vibration is not just a definitional adjustment, nor simply a rhetorical attempt to allude to prelinguistic and presemiotic spaces or pre- and posthistorical spaces. In invoking vibration, I am not making a posthuman move toward the subjectivity and agency of things, or away from human-made sounds to theoretical vibrations of the spheres, unrelated to and unencumbered by humans. I reach toward vibration not to offer a mechanical orientation or to align considerations of sound with science, nor because I consider music as entirely mechanistic, something in the sphere of applied engineering rather than aesthetics.

Instead, my turning to vibration is fueled by my interest in thinking about music as practice, not object. Music as vibration is something that crosses, is affected by, and takes its character from any materiality, and because it shows us interconnectedness in material terms, it also shows us that we cannot exist merely as singular individuals. In this sense, music as vibration is analogous to social relations in a Marxist sense, or "the common good," which, as the theologian Jim Wallis cites from Catholic teaching, is vital to the "whole network of social conditions which enable human individuals and groups to flourish and live a fully genuinely human life."[64] The ramifications of understanding music as a practice of vibration are not limited to music discourse or music culture, as Wallis has suggested. In contrast to the figure of sound, the figure of vibration understands music as always coming into being: it renders music an event of the common good.[65]

This shift in orientation leads to major adjustments regarding epistemology, ontology, and ethics. First, using the illuminating framework of the Dutch philosopher and anthropologist Annemarie Mol, "ontology is not given in the order of things, but . . . instead, ontologies are brought into being, sustained, or allowed to wither away in common, day-to-day, sociomaterial practices."[66] Second, when we deal with music, singing, and listening as events rather than as objects, the need for a specialized epistemology of sound evaporates. Ques-

tions and methodologies designed to lead to the ability to know and identify the sonically knowable become uninteresting if there is nothing to recognize and identify a priori, nothing to know.

And, third, this epistemological shift replaces the central tenets of musical ethics and values, moving from fidelity (questions of identity and difference) to charity (concern for the material implications of our actions on others). Here, we consider the experience of music as one possible register in the full range of material vibrational practice. If we accept this position, music necessarily brings us into the territory of relationality, and hence of political ontology. Thus, what we conventionally consider audile listening is only one of many possible ways of articulating and interacting with and through material relations.

Naturally, then, music is only one of many areas in which adopting the paradigm of the practice of vibration helps both equalize the roles and contributions of the different senses and point to an ethics that circumvents fidelity. For example, a thought model that I have followed, and that has influenced me throughout this project, is Aldo Leopold's classic essay "Land Ethic," first published in 1949.[67] In it, and through his lifework, Leopold introduced ethics as the fundamental concept that should underlie all considerations of land and water use, including our relationship to land and water. While my project does not explicitly argue for sound making and listening as ecological practices, I have found in Leopold's philosophy of the human-land relationship a lucid model for human-human relationships as they are rendered when sound is understood as material transmission: "In short, a land ethic changes the role of Homo Sapiens from conqueror of the land community, to plain member and citizen of it. . . . It implies respect for his fellow members, and also respect for the community as such."[68] Leopold's text, which is intensely relevant today, is valuable in thinking about all relationships and stewardships into which humans enter. While reading the above excerpt, in my mind's ear I heard: "Approaching sound, music, and voices as vibrational practice changes the role of Homo Sapiens from conqueror of the figure of sound, to plain member and transmitter of a vibrational field. It implies respect for his fellow members, and also respect for the community as such."

Leopold's meditation on our ethical relationship to the land resonates with and underscores my convictions about ethical relations in the practice of music. Trapping music in the limited definition that follows from the figure of sound (that is, a stable signifier pointing to a static signified) constitutes an unethical relationship to music. According to my definition, having an ethical relationship to music means recognizing it as an always becoming field of

vibration and realizing that music consists not only of inanimate materials, but also of the materiality that is the human body. Starting from Leopold's clear vision about the human-land relationship and adapting it to human-human relationship with an understanding of music as material transmission lays bare how we are interconnected: "It's inconceivable to me . . . that an ethical relationship to [music] can exist without love, respect and admiration, and a high regard for [human] value."[69]

Leopold reminded us that we do not possess the land; rather, we have been entrusted with its stewardship.[70] Similarly, because a sound cannot be fixed, one cannot own a sound. In our relationship to sound we are both in and of vibrations. We simultaneously create and experience vibrations, sound, and music in the same moment, both as performers and as listeners. And it is precisely because vibrations do not exist separately from the materiality of the human body that we cannot objectify them.[71] Sound, voices, music, and vibration are under our stewardship as long as we are part of their field of transmission.

Chapter Overview

My denaturalization of music's parameters and investigation into music as a vibrational practice unfolds over five chapters. Four of these chapters use twenty-first-century American operas—envisioned and created by a rich range of women composers and performers—to think through four naturalized ideas about singing, listening, sound, and music that commonly underlie musical perceptions and discourses:

—The privileging of air, as opposed to any other medium of sound propagation;
—The predominant idea that sound's behavior should be understood in linear, visual terms;
—The presumption that sound is stable, knowable, and defined a priori; and
—The assumption that music deals only in sound and silence.

Each of these naturalized ideas typifies a flattening of what I posit is a multidimensional and contextually dependent phenomenon. And each depends on a priori definitions of sound.

In the first four chapters, I denaturalize these presumptions, which are the bedrock of many musical analyses and colloquial conceptions. These case studies arise from my engagement with multisensory scholarship, sound

studies, voice studies, and opera studies. I generalize this analytical framework in the book's final chapter, considering music as a vibrational event and practice. In pursuing this line of inquiry I come to the understanding that, because music is not apart from us but of us, it cannot be naturalized. Hence my concluding chapter makes it clear that my critique of fundamental sonic conceptions is indeed a critique of their ethical implications.

In chapter 1, "Music's Material Dependency: What Underwater Opera Can Tell Us about Odysseus's Ears," I examine the underwater vocal practice of the Los Angeles–based performance artist and soprano Juliana Snapper (b. 1972) and dispense with the idea that sound is stable and knowable before it is produced and perceived. By no longer viewing air as the natural medium through which sound materializes, and by recognizing instead that airborne sound partakes of air's distinctive features, we come to appreciate the process of sound as a dynamic, interactive coming into being. This chapter also applies Snapper's insights to a surprising new reading of the sirens in Homer's *Odyssey*. This is the first of three chapters that discourage the common understanding of sound as merely aural and expose the associated deficiencies in current analytical techniques.

In Chapter 2, "The Acoustic Mediation of Voice, Self, and Others," I deal with spatial-relational and acoustic dimensions that are naturalized through distinct sonic, performative, and listening practices. The two pieces I examine, Meredith Monk's (b. 1942) 2008 *Songs of Ascension* (originally composed for a sculptural tower with a double helix stairway and subsequently rearranged for traditional performance venues), and the opera-for-headphones production of Christopher Cerrone's (b. 1984) 2013 *Invisible Cities* (performed within the bustle and everyday activity of Los Angeles's Union Station but delivered to audiences via headphones), show that most of the live music we hear in a Western context is presented within an acoustic frame so naturalized that any other acoustic setting is understood as wrong rather than different. I suggest that a given acoustic frame offers us more than simply poor or optimal sound, and that thus the naturalization of acoustics affects dimensions beyond our experience of the sound per se. That is, I posit that acoustic and spatial specificity also participate in giving form to the figure of sound, and that the acoustic mediation of sound and habituations related to it profoundly influence our experience of self and others.

In Chapter 3, "Music as Action: Singing Happens before Sound," I posit that sound is a subset of vibration and suggest that singing and listening are vital exchanges of energy. I interrogate the basic principles of singing and sound production by examining performance art pieces by Elodie Blanchard (b. 1976)

and a chamber opera by Alba Fernanda Triana (b. 1972). In these projects, sounds do not maintain static definitions based on numerical values (for example, 440 Hz) or significations (such as the note A). Instead, sound is a dynamic element arising throughout the exchange that takes place during singing and listening. This chapter denaturalizes sign- and discourse-based analyses of sound, proposing in their place a material, sensory-based analysis that assumes sound to be the result of an action rather than the action itself. I compare this perspectival shift to the sea change that took place in art criticism in response to Jackson Pollock's work: with the rise of what became known as action painting, critics had to move away from defining artistic work as a corpus of reified objects (works) and instead define it in terms of the actions that might have produced such objects. In this way, chapter 3 questions the position and origin of the definition of *work*.

Chapter 4, "All Voice, All Ears: From the Figure of Sound to the Practice of Music" concerns common assumptions about music and its definition. One major problem with the naming process in general is that the name becomes an index for an experiential phenomenon. Relying on the index, we become several steps removed from the phenomenon itself, including its initial, singular articulation; the likelihood that we can experience another moment unmediated by prescribed parameters and meanings; and even the name itself. For example, although we are educated to believe that it is the form of an opera that moves us, in actuality we are moved by multiple singular and particular articulations within, yet not reliant on, the operatic form. We listen for opera, arias, and a particular operatic sonority; we endorse and validate the experiences we have in accordance with these predetermined categories at the expense of other experiences—that is, even though other articulations that do not fit the categories might also offer meaningful experiences. Thus the names, and the fit between names and experiences, become central. This constitutes the process of reification. In chapter 4, I examine how this process is performed in classical vocal pedagogy, and I experiment with a teaching style predicated on the assumption that singing and music are material articulatory processes. This chapter proposes that articulatory action—indeed, events—is at the core of both singing and music.[72]

The fifth and final chapter, "Music as a Vibrational Practice: Singing and Listening as Everything and Nothing," uses the four case studies and multisensory perspectives offered by the preceding chapters to propose a model for thinking through selfhood and community. In this model, *we* are sound. Like sound, which comes into being through its material transmission, human beings are not stable and knowable prior to entering into a relationship; rather,

we unfold and bring each other into being through relationships. Our potential for recognizing and accepting self and other rests on our ability and willingness to be changed by our encounters, rather than merely by the potentially desirable qualities (or their absence) in others. Hence, for a relationship with sound to take place, we must be willing to take part in, propagate, transmit, and—in some cases—transduce its vibrations. From this it follows that entropy occurs when we focus on the preconceived identity of another rather than on our own ability (or inability) to undergo change. I posit, then, a strong parallel between how sound is realized or propagated through certain materialities and how we as unique beings are being realized through transmission and the reception of another person who approaches us as a unique, unrepeatable human being.[73]