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## **The Routledge Companion to Sound Studies**

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### **Multisensory investigation of sound, body, and voice**

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## MULTISENSORY INVESTIGATION OF SOUND, BODY, AND VOICE

*Nina Sun Eidsheim*

### Introduction

In colloquial terms, western thought and language tend to treat the sound of the voice, the material voice, and what the voice produces as the same. As classicist Shane Butler notes, these ambiguities can be traced back to at least as early as ancient discussions of the *phōnē* and *vox*, the two principal Greek and Latin words for “voice.”<sup>1</sup> This chapter addresses two problems associated with these ambiguities which have consequently shaped sensorial experience and understanding to align with these and related phenomena. First, academia is splintered into areas of specialization. As Tomie Hahn has pointed out, research has historically been divided by the senses: to bring out the differences, we can note that ethnomusicologists, for instance, observe through listening; dance scholars specialize in physical and tactile inquiry; and musicologists observe through reading manuscripts.<sup>2</sup> Because each field builds not only on the premise of an artificially separated segment of a rich phenomenon but also on the inherent diffuseness of definitions, each discrete area of research is limited in its efforts to capture the phenomenon at hand. Second, both scholarly investigation and everyday experience of most phenomena are built upon a naturalized cultural and social sensorial framework, and this framework separates the senses. It is through these imprecise perspectives that processes of knowledge creation are set into motion and subsequently become established. And, it is such an iterative process that has defined these scholarly fields for themselves and in opposition to one another.

In this chapter, then, I will offer a discussion of the ways in which the cultural and socio-sensorial framework creates and inadvertently sets limits on knowledge development. I will posit that the limited frame of reference used to investigate voice and sound often artificially separates them from the body specifically and materiality generally. What is notable here is not only the initial separation itself, but also that the very separation and the subsequent field-specific process of inquiry confirm and reinforce this partition. In short, this separation prevents richer understanding of sound and voice as potentially distinct phenomena, and of their relationship to each other.

The three terms I discuss below—or, more precisely, the categories represented by each term—which relate to and, at times, co-create one another in their distinction and separation are sound, body, and voice. First, I discuss how each of these terms leads to a funnel of privileged methodologies that, as a direct result of the research methods selected, draws out each object’s distinctions. This process of discernment takes place at the expense of identifying commonalities

and convergences. Second, I also recognize that the observation which identifies any given category is created through a culturally constituted sensorium. This sensorium was formed as a result of attunement to particular concerns and values, and hence it has organized, privileged, highlighted, and muted certain aspects of experience and its conceptualization. Finally, I suggest a methodological starting point that can lead to an understanding of interconnectivity between the three phenomena, while also deepening a particular understanding of each phenomenon's multidimensionality. Thus, drawing on organizational behaviorist Justin M. Berg's work on creativity as well as examples of my own work, I make a case for methodological experimentation in inquiries into voice, sound, and body. Doing so, I suggest, leads not only to increased understanding of the interconnectivity between sound, body, and voice, but also to a deepening understanding of each object and concept. Ultimately, in the long view, such research can contribute incrementally to our understanding of how sound and voice each do what they do when they evoke emotion and meaning for people.

### **Sound, body, and voice definitions as “primal marks”**

What kind of information do we access when we examine phenomena that are divided into sound, body, and voice? The premise of this chapter is that we access rich phenomena from a partial point of view, and, in our case, that the process through which this partial view comes into relief is determined by the definition of the phenomena into sound, body, or voice. In other words, investigation into the phenomenon is limited to an already partial point of observation and experience before the methods of inquiry have even been selected.

According to Berg's theory of the “primal mark”—that is, “the first bit of content [researchers] start with as they generate ideas, which anchors the trajectory of novelty and usefulness”—the imprint at the starting point is crucial. Indeed, in his formulation, “the beginning shapes the end in the development of ideas.”<sup>3</sup> In his work on creative ideas, Berg has identified the challenge of developing ideas that are both “novel” and “useful.” In other words, if an idea's novelty value is high, it is often not very useful. If a primal mark's usefulness factor is high, the ideas it generates are generally higher in usefulness than in novelty, and vice versa. Berg, however, suggests the process of mitigating potential tradeoffs between the novel and the useful by integrating familiar and new material (hence balancing the primal mark) and generating ideas that are both useful and novel.

Considering Berg's framework in relation to humanistic research, an inquiry based on the set pairing of a definition of the object—such as sound, body, or voice—and the scholarly fields and methodologies that are required by the definition of the object functions as a “primal mark.” That is, in such a setting, the primary mark is first and foremost set by a given usefulness factor—for which, for our purposes, Berg's “familiarity” factor seems more appropriate. We can think about conventional pairings of defined objects and methodologies commonly used as familiar. Here, the primal mark is familiar through and through, and will most likely not yield a high novelty factor.

For me, the lack of the primal mark's novelty in this formula is encapsulated in the classic question: “If a tree falls in the forest and no one is there to hear it, does it make a sound?” A leading question which also defines the object at hand, it offers no room for novelty. While people generally pose this conundrum in order to raise issues about reality and observation, it is a closed-ended question and its premise is set by the socio-cultural separation of the sensorium into distinct phenomena that appeal to either audition, vision, tactility, olfaction, or taste. To adapt Clifford Geertz's terminology, the question moves without examination from a thick event (the falling of a tree) to the experience as relayed through a sensorium (audition). By

offering a definition of the phenomenon, the question and its attendant assumed methodologies set up the inquiry's primal mark. As Berg proposes, "the final novelty and usefulness of ideas depends on the seeds that are planted near the very beginning of creative tasks," with the limiting seeds planted by the falling tree question confining our inquiry to its sonorous dimensions.<sup>4</sup>

Not only this particular philosophical question but, if we reflexively follow the conventions of a given field, research questions in general can foreclose the possibility of introducing novel dimensions into the mix. For example, in questions posed through the framework of sound, the researcher would ask about volume, etc. and get out her decibel meter. If her questions are posed through the more specific framework of music, it is assumed that the event is made up of sounds and silences which together create some type of form by virtue of starting at a particular point and ending at a different one—even if what she observes is that the music goes on forever, that is, that it breaks the general rule. Within a music framework, the multifaceted event of a falling tree would be rendered *music*, and a leading set of questions and corresponding skillsets would be set out in order to locate the music in the phenomenon. From the outset, the specific vocabulary would establish a music world, and possibly a sound world. It could establish a music world by asking about the range of the *itches*, the musical texture, the form, and the timbre. It could further strengthen the definition of the falling tree event by connecting it to music history. For example, an uncontroversial history of music would tie such a composition to John Cage's "4'33", and would discuss the free-falling sounds with a defined musical space. The analytical tools would be drawn from practices that deal with this type of music. And, in the end, we would have created our piece of music.

If our question were posed through the framework of voice, we would also search for the sound, but would ask a different set of detailed questions. Considering the sonorous dimensions of the tree's voice, how many phrases did it produce? What is the syntax of the phrases? Do we hear any resemblance to a given language? How would the event be noted so that a voice could reproduce it? Personifying the tree, we could further ask about the phrase's meaning. Moreover, metaphorizing voice, we could ask about the subjectivity expressed through the tree's voice, made evident in its decision to fall.

Posing our question through the framework of the bodily, we could go in at least two different directions: materiality generally, and body movement (dance/choreography) as one specific sub-area. As materiality, we could investigate the weight, length, and circumference of the tree and calculate the force with which it hits the ground. We could consider the composition of bodies in space with the tree in place and after its fall. Furthermore, we could consider the effect of the impact on surrounding growth and the length of time it would take before the cleared area was covered again by small growth.

While the above assessments may seem like caricatures, their considerations are not far removed from the process (and its associated research steps) of conceiving of a falling tree as sound. In isolation, none of the above approaches—considering a falling tree through music, body, or voice—begins to address the richness of the phenomenon in question. The same applies to rich phenomena that are indexed as music, sound, singing, and listening. Sound, body, and voice are phenomena that unfold across time and space, and are materially specific and relational. Scholarly approaches take live, complex phenomena and project them into a linear framework that fails to account for their fullness; this framework also, to some extent, misdirects the knowledge we develop about their specifics. As the linear model becomes the framework through which a phenomenon is experienced, it is truncated, not unlike the above descriptions that might have been read as caricatures. Specifically, each of these models—and, I do believe that an unambiguous definition of sound, body, and voice is basically only a model—deals only in an isolated "channel" of the sensorium. Sound, in the specific iteration of music and voice, is

treated as dealing in audition. Body is treated as dealing in tactility. Again, these modes of the sensorium are, first, culturally constructed, and, second, artificially separated from one another for the purposes of research and for their usefulness factors.

### **From familiarity to the novelty of a sensorium challenge**

If the establishment of disciplines creates ready-made familiar “primal marks” that result in blindness to new knowledge, why would we not simply move away from such a model? Each discipline’s specific goal is to create an area of expertise and depth. Each discipline also seeks comprehensiveness. But achieving comprehension also tends to create isolation. A common graduate student comprehensive exam format is a prime example: it defines what is inside a given area and what is outside it, and mandates the building of thorough knowledge of a subject inside the circle. In the case of rich phenomena from which concepts such as sound, body, and voice may be parsed, we are not only talking about a theoretical reading list and knowledge of those texts and their discursive relations. We’re also talking about a set of socio-culturally formed sensory systems and the ways in which the senses create sensory systems. In fact, the “correct” sensorium is taught from the very first entry into language and concepts, and is part of any pre-school curriculum. In the cultural context of the writing of this chapter, this sensorium is formed, reinforced, and known to be reality through processes such as basic repeated questions and responses: “How do we hear?” “We hear with our ears.” Thus, scholarly discourse is always already informed by the culturally tuned sensorium. This perspective is isolating in terms of the creation of knowledge, which operates in a binary and linear fashion.

What I propose herein is to move from binary to a simultaneous and concurrent conceptualization and experience of the phenomena which we have historically referred to as sound, body, or voice. This can be accomplished by integrating primal marks “that combine new and familiar” content and perspective.<sup>5</sup> Instead of paths of inquiry that rely on one of the senses (as defined by a particular culture) to the exclusion of others, I am committed to a research approach which recognizes that the singular paths are always already a reduction of the phenomenon of, for example, the falling tree. I encourage the use of a set of research strategies and processes that can recognize the three-dimensional, non-linear, non-binary reality of the falling tree phenomenon—or, for that matter, sound, body, and voice—at once. Thus, the kind of attention or discernment I wish to promote is the realization that experiencing and living sound, body, and voice is to live simultaneously in three dimensions. In effect, the two dimensions within which the binary operates are always already reductive, restricting our ability to interact with and comprehend any given phenomenon. What I conceive as multisensory relational materiality multiplies the available paths. Not only does it expand knowledge, but it offers the capacity to increase scholarly cross-fertilization as well as broaden community.<sup>6</sup> It has been my experience that, when a researcher is able to perceive the event of the falling tree as an unnamed whole, the potential to recognize the validity and depth of knowledge of each specialized path becomes available, while openness to other, sometimes opposing knowledge is maintained. This process of uncertainty and self-exposure to a non-expert mind may be contrasted with binary thinking, in which the likelihood of creating a universe of limited, and hence diminished, reality increases. When we take that route, we create isolation and restrict our ability to move forward in both research and everyday experience. Within sound studies, how may we start to interact with complex events beyond the primary mark and its default familiarity, set by a given discipline? And, if we are confined within the already partial and limited perspectives of the sensorial system within which we have been cultivated and through which we experience the world, how might we forge a way toward a balance between the familiar and the novel?

The foundation of this new balance is built on acknowledging that each scholarly perspective is an isolated and limiting path, providing only primal marks, the value of which is already secured—that is, the outcomes will fall within known territories. Adding the perspectives to one another can allow them, together, to account for a fuller story. Recall that, in Berg's conceptualization of this process, familiarity and novelty may be combined. However, introducing novelty and open-ended outcomes stands in opposition to the ways in which scholarly discourses are formed, defined, and traditionally carried out. It is not necessarily the case that one discounts the research of another outright. However, the boundaries of a given field are normally used to establish "relevant" knowledge for that field. Thus, while research within other scholarly areas is not directly dismissed by a given field, it is not taken into account in a serious way, because it is understood that it does not intersect.<sup>7</sup> While not discounted, though, stories are most commonly hermetically sealed. In other words, a line of research is defined by its avoidance of overlap with another line of research, specifically the definition of the object—definitions in opposition such as sound, body, and voice are classic examples—and its attendant epistemological circumference. Even when the object may seem linguistically the same (as, say, *voice*), the fields distinguish themselves from each other by dealing in particular sub-definitions of the object (say, voice as text, language, performance, organ, mechanical vibration, and so on).

If the method itself creates the evidence that proves or develops knowledge only in expected areas, and the resulting object is predefined by a chosen methodology, then—practically—how can we move beyond the confines of that which is defined by the culturally entuned sensorium? For Berg, as the concept of the "primal mark" suggests, it is the starting point of idea generation that sets the course for the types of ideas that it is possible to generate. Like a painter's first brushstrokes, which shape the trajectory of the painting, the starting point of idea generation opens a pathway for some ideas and precludes the testing of others. In an experiment, Berg asked participants to begin with a given object and create a product that would be helpful in a job interview. When given a three-ring binder, Berg's study participants came up with ideas which were deemed obvious by an independent panel. When the starting point was the concept of an in-line skate for rollerblading, the resulting idea was a watch that would show the passing of time through a changing physical element (such as skates). The user can feel the passing of time by squeezing the watch. However, while the first invention's use value was low because it was too familiar, the second invention would arguably be considered equally unhelpful because it was too novel. By asking the participants to refine the product and adding a familiar element—photos of a series of objects commonly used in job interviews—to the process, the mix between novel and useful was balanced. The new iteration was a pen that, through small buttons, automatically changes position to mark the passing of time. This generated idea was informed by both the novel and the familiar.

How may we adapt the framework of balance between the familiar and the novel to the simultaneous deepening of knowledge? And, how may we cultivate outside-the-box insights when the definitions and the sensory modes of the categories sound, body, and voice are derived from a culturally dependent sensorium, a system akin to a primal mark? In music and voice research, for example, within the western classical music tradition and musicology, voice has not primarily been considered in its sonorous form, but rather as text and as predictable performances of compositions. And, when music or sound generally, and voice specifically, are considered in their sonorous aspects, their auditory form is dependent on a limited material iteration.

If we examine conventional approaches to the voice, we may conclude that the study of the voice as libretto, score, and the transmission of sound through air is the musicological equivalent of Berg's three-ring binder. Like Berg, I do not advocate for a dismissal of traditional and proven, productive methodologies. Instead, with him, I seek a balance between the familiar and

the novel. In this situation, examples of the familiar could include the recognition of voice as a performance of a composition. The novel could take the form of an unusual case study which a researcher may reject because it does not fit within the methodological scheme. Or, as Berg's examples demonstrate, it could take the form of a forced and unexpected starting point, such as asking the researcher to create a cartoon that expresses an analysis of the vocal work, rather than a traditional written exposition.

As Berg notes, in order to access a broader picture and push into creativity—here meaning creativity in relation to research—any given approach will of course cease to offer novelty. Thus, as we choose a relatively unfamiliar perspective or instrument within a given context, we also must be prepared to detect the moment when that which once offered novelty no longer contributes to a balance between the familiar and the new. It is important to point out that we do not seek to replace one approach with another, but rather to supplement the existing approach and to devise fresh combinations. In this way, even commonly used approaches can yield new information when put into conversation with new ones. At the core of the matter, we are looking for something that will disrupt the convention of one or a few paths only, not as a replacement, but as an addition. What was once novel will, with adaptation, become familiar and be integrated into the norms of the field. Within a continuing productive approach, the process of including novel primal marks is iterative. Recall that in order to create a balanced primal mark, there must be at least two differing factors. Therefore, what was once novel could, at some point in the process, begin to serve as the familiar.

### **The equilibrium between Wagner and underwater singing**

In the early 2000s, I failed to act on an exclusive invitation to witness a performance of Juliana Snapper's underwater *Five Fathoms Opera Project*.<sup>8</sup> While she had been a longtime friend, and a singer and artist I greatly admired, soprano and performance artist Snapper's projects took me some time to get around to. When I did engage with underwater opera work, though, it demonstrated to me the balance between the familiar and the novel in musicology, sound, and voice studies. I dismissed this project because it flew in the face of everything I knew about singing generally, and classical singing in particular. In addition, its dramatic presentation underwater was even more fantastical than Baroque opera. My internal list of reasons for rejection reads like a laundry list: Snapper sang in a place that was uncondusive to singing; she transformed the music by singing in such a different materiality; she was in a separate material space from her audience. These reasons made it difficult to study her work in a traditional sense—a context in which her work would be rejected. However, by taking it on, I learned a lot about what our current methodologies are good at, but also about the aspects of sound, body, and voice which they naturalize. Moreover, in taking it on, an agenda was set for me in regards to adopting a predetermined and novel starting point.

If the notion that voice and music occupy a textual or conventional sonorous analysis constitutes our three-ring binder, then the in-line skate Snapper offers is the idea that sound, music, and voice are realizations of an unrepeatable intermaterial vibrational relationship in which the body is a central player. Through Snapper's work I stood at the trailhead of an exciting journey, a journey that tasked me with keeping traditional aspects in mind while also finding new questions and pursuing peculiarities. On the one hand, Snapper's repertoire was anchored in the classical canon: she sang compositions by Hanns Eisler and Richard Wagner. On the other hand, her interpretation and staging were unlike any I'd heard before. In this way, she provided balance between the familiar, in the form of well-known repertoire, and the novel, in the form of the staging: submerged in water. Had Snapper simply staged this type of repertoire in a concert

setting—or, at this point in the history of site-specific art, anywhere within the medium of air—it would have been akin to the three-ring binder, and that start to the challenge would have led the researcher to pursue familiar questions. However, when the singer is underwater, extremely basic questions become novel—questions so basic that they are often not asked in relation to performance of classical repertoire immediately arose: “How can Snapper sing?”; “How does she get oxygen?”; “Does, or how can, the audience hear Snapper?”; “Why is she doing this?” Moreover, while these questions might lead to basic investigations of singing, they also address profound issues at the heart of sound, body, singing, and listening.

What Snapper’s underwater opera project invoked, for both audience and researcher, was a primal mark that did not distinguish between sound, body or material, and voice, and that assumed they worked together, as a complex. The dissolution of distinct categories—singers, compositions, listeners, material transmissions, and meaning-making—was also part of this primal mark. Such a starting point raised questions about the material separation between audience and singer when the audience is not submerged in water with Snapper, or a shared materiality when the audience is underwater with her. This led me to investigate sound and voice from physics and mechanical engineering perspectives, applying insights from these fields to an aesthetic context. What I found was that events of voice, sound, and hearing are always already the result of a specific relational configuration between the vibration of the material vocal apparatus, the produced sound, the material that transmits the sound (such as air, water, or metal), and the listening body’s material configuration in relation to that transmitting material.<sup>9</sup>

In other words, what Snapper’s “in-line skate” effect both exposed and offered as a fruitful area for investigation was the naturalization of what we believe we know about sound and voice sonically, and the ways in which we take the sensorium and the data we derive from it for granted, in its naturalized formulation. Once sound and voice have been denaturalized in terms of their realization in air, and once they are always already not only implicated in body (materiality) but realized through a material relationality, none of the previous analytical models are sufficient in themselves. Therefore, through her provocative series of performances, Snapper provides an in-line skate that no longer allows for traditional considerations. We cannot return to our tried-and-true analytical models without keeping this added perspective in mind. Thus, Snapper’s stagings raise basic questions and provocations that, at least for the time being, feature a novel primal mark, but are bathed in the familiar in terms of repertoire and musical practice.

Also key to this project’s primal mark is how it assists us in expanding our inquiry beyond the socio-culturally formed sensorium. While not undoing centuries of refinement, by expanding the definition of singing beyond aurality to include tactility and materiality, the study of song is pushed into new sensorial territory, gathering in aspects of the sensorium that are not normally addressed in relation to singing. Thus, by providing such a strong primal mark, Snapper challenges her audience and researchers to experiment beyond their sensory or field-specific “go-to” methodologies which have already naturalized the sensorium and the corresponding sense.

Specifically, Snapper’s underwater opera project set me on an unexpected research journey that led me, in the end, to introduce basic physical principles to serve as novelty marks in regards to sound. By bringing traditional repertoire into an unfamiliar materiality, Snapper exposes the contingent materiality of air itself, and of the bodies that hear within it. Through her project, she opens a space within which we may rediscover the material relationality between the so-called source and its listeners, since sound and voice, if heard, are ultimately realized through the materiality of the listener. In this way, an underwater opera project which consists of standard repertoire sung in an utterly unfamiliar setting offered a productive primal mark, balancing familiar and novel, in areas ranging from the types of questions provoked by the project to the methodological approaches it suggested. The blending of these two paths into a rich primal

imprint allowed for a deepening of my understanding of sound, body, and voice not only as co-producing categories, but also as distinct characters.

## Conclusion

Even if I needed time to take her venture seriously due to its strong novelty factor, the invaluable in-line skate aspect of the primal mark was offered by Snapper herself. While Berg's study was published in 2014 and I only learned about it a year later, on looking back I see that we consistently search for projects that present a novelty factor, and there is no shortage of this type of work in the musical and artistic worlds. However, if a potential research project does not present the recommended balance between the familiar and the novel, how may we *devise* so-called in-line skates? To think through phenomena that include sound, body, and voice, I often use, and have also taught, the same series of exercises which play with and take advantage of the fact that we experience the world through a socio-culturally constructed sensorium. While I often view this naturalization as limiting my experience of the world, contrary to common sense, that very rigidity may also be exploited to offer novelty.

My series of exercises is simple. It asks researchers, who I conceive as practitioners, to purposefully apply and exercise senses that are not commonly associated with the object or medium under scrutiny. Thus, the exercises scramble the culturally spun logic of the sensorium by crossing wires, so to speak. For example, instead of asking how to *describe* a given sound in the expected vein—"it sounded loud; the note ascended; it is made by an alarm or a computer"—I suggest the researcher ask herself: if I were to take in this phenomenon as something other than sound perceived through audition, how would it look, taste, smell, and feel? Or even, multiplying a given sensorial path, we could ask: what would it sound like as another sound? This deliberate cross-sensory approach acknowledges that although music consists of sound waves and falls within a socio-cultural context known to appeal primarily to hearing, the full range of senses interacts and converges in intricate ways, never operating in isolation. In this way, the aspects of the sensorium that are surgically divided by the question about the falling tree can again be related to each other. Through a multiplicity of sensory entry points, akin to dual vision compared to monovision, the phenomenon's complexity is given consideration. As the visual analogy highlights, what closing one eye when aiming provides in terms of accuracy (which we can compare to specialization within a field), opening a second eye adds in depth and complexity. In the same way, a rich primal mark is devised from two or more points of view. An examination of the event of the falling tree through questions that inquire along multiple sensory paths will offer means to increase our understanding of the complexity of the event that led to its sound. Similarly, multisensory investigation of phenomena that have historically been studied through a single sense can increase our knowledge of their complexity, hence serving our research, disciplines, and general understanding of sound, body, and music.

## Notes

- 1 For a nuanced discussion of the etymological and philosophical history of the term "voice," see Shane Butler, "What Was the Voice?" *The Oxford Handbook of Voice Studies* (New York: Oxford University Press, in press).
- 2 Tomie Hahn, 2007. *The Body Articulate—Dance Notation and Ethnography*. In the Society for Ethnomusicology's Annual Meeting. Columbus, OH (October 25, 2007).
- 3 Justin M. Berg, "The Primal Mark: How the Beginning Shapes the End in the Development of Creative Marks," *Organizational Behavior and Human Decision Processes*, 125 (2014) 1.
- 4 Ibid.

5 Ibid.

6 For an in-depth discussion of this, see Nina Sun Eidsheim, *Measuring Race: The Micropolitics of Listening to Vocal Timbre and Vocality in African-American Music* (Duke University Press, forthcoming).

7 Note that interdisciplinary research sometimes does, and sometimes does not, challenge the situation described here.

8 To read in detail about this project, see Eidsheim, *Sensing Sound: Singing and Listening as Vibrational Practice* (Duke University Press, 2015).

9 See Ibid., 1–95; 154–186.