

Chapter 5 - Analytical Methodologies: Listening to Electroacoustic Music, Reading Responses

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Composer and music theorist James Tenney points out that by the 1960s there is a gulf between the conceptual framework of 20th-century music theory and musical practice, a gap which is particularly evident with electroacoustic music:

... the disparity between the traditional concepts and the actual musical "object" becomes even greater with the more recent (non-instrumental) electronic and tape-music. But even here, the problem is not really one of a lack of familiarity, but of a nearly complete [disjunction] between music theory and musical practice. Thus, even when the novelties of the various styles and techniques of 20th-century music have become thoroughly familiar, certain "complexities" will still remain outside of our present conceptual framework, and it is clear that this conceptual framework is in need of expansion (Tenney (1961)1992: 4). While Tenney originally expressed his concerns about the conceptual framework of contemporary music theory in 1961, I believe that his statement still holds true in general.¹ Very few electroacoustic works have been described in detail, and still fewer from a listener's perspective. More importantly, perhaps, there remains a prevailing attitude that listening is not a suitable basis for musical analysis of such works. This attitude is evident in an article entitled "The Analysis of Electronic Music," by Marco Stroppa. Writing in 1984, he says that although hundreds of electroacoustic works existed at that time, he could find no specific analyses:

One might have expected such a wealth of pieces to have stimulated major theoretical comment, as was the case with instrumental music in the period after 1950. But the landscape of thought and criticism is surprisingly barren.... If we count specifically examples of musical analysis, the number is reduced simply ... to zero. (1984: 176)² Stroppa discusses the difficulties he encounters in attempting to analyze Jean-Claude Risset's *Songes for tape*. He notes the absence of a written score: while composers often produce schematic representations of the work, they are often, in Stroppa's view, "crude and approximate, particularly in comparison with the complexity and perfection of traditional notation" (1984: 177).

The alternative, he decides, is listening. Yet he does not trust this either:

Perception fanatics seem to suggest another, radically different approach. "Let's get rid of the written text, and think more about what happens to our ears!" they say. Perhaps they are right, but then they must be prepared to limit themselves to the discovery of a few superficial features, a few oppositions of contrast, and little else. Unfortunately, perception, as it passes through the sieve of our auditive system, is an extremely variable personal phenomenon. For the same sound stimulus, everyone has a different perception and reaction. It seems difficult, therefore, to establish common, objective elements on such changeable bases. (1984: 179) As a result of this apparent impossibility of reading or listening, Stroppa concludes that works for tape alone are "at present impossible to transcribe and analyse and in this case we can only be sure of a relative and superficial analytical understanding" (1984: 180). He is making this claim on the basis of a number of assumptions that I do not share. He suggests that one has to choose between listening and using a written text. Theorists such as Tenney who are interested in auditory perception do not suggest getting rid of the written text, but instead using it as only one strategy in the analytical process, which is based on listening as well as reading whatever is available. Mixing scores and composers' transcriptions do not give all necessary information, but then neither does any score,³ as Stroppa admits. More importantly, close and repeated listening does not limit the analyst to superficial features: each time the analyst listens, increased depth is possible. Stroppa emphasizes the subjectivity of listening, giving objective and therefore privileged status to the written score. While variations exist in listeners' perceptions of sound, they also exist in what people read in a score.

Tenney's approach to music analysis, as elaborated in *Meta+Hodos* (1992), seems important to me in its focus on listening intently to the work, and in its equal consideration of the musical parameters of pitch, loudness, timbre, duration, temporal density (the number of successive elements in a particular time-frame), vertical density (the number of simultaneous elements sounding), and envelope (the shape of onset and decay of a sound). Tenney's method of musical analysis is based on the gestalt perceptual principles of cohesion and segregation, applied to the perception of the clang (a sound or sound configuration that is perceived as a primary musical unit) and their perceptual organization into sequences (successions of clangs on a larger perceptual level or temporal scale), creating a perceived musical form. Using Tenney's approach (but not always his terminology), I listen to works by Westerkamp, noting gestalt patterns of different parameters and how these interact in the creation of a musical form.

Perceptual Transformations

There are several processes that Westerkamp uses in much of her work. These include the use of long excerpts of unchanged field recordings; juxtaposition of edited and manipulated sounds with original recordings, subtle transformations of sounds using reverb and filtering, extended use of pitch-shifting (or in analog work, tape speed changes), and the occasional use of more radical transformation processes. In the following pages, I want to consider each of these processes with regard to their

perceptual importance, following Tenney's ideas from Meta+Hodos, and how these perceptual factors are related to recurrent issues raised in listener responses to the five pieces that form the next group of chapters.

Unchanged field recordings and narrativity

When listeners hear excerpts of pieces by Westerkamp in which field recordings predominate, such as the beginning minutes of *Kits Beach Soundwalk*, a common reaction is to question its status as music. To many people, field recordings sound too close to the sounds of everyday life, too full of narrative content, to be musical. This is particularly true with recordings that include human vocalizations (apart from singing), since our ears hear best within the human vocal range, and we are pre-conditioned to pay more attention to human vocalizations and to their potential meanings. Westerkamp wishes people to pay attention to the musical qualities of everyday sounds as well. She accomplishes this by juxtaposing these unchanged recordings with excerpts of the same recordings, subtly transformed to highlight their rhythmic, harmonic, melodic and timbral patterns of movement through time, emphasizing links between narrative and music.

Katharine Norman (1994) defends narrativity as musically important because of the way that composers who work with what she terms "realworld" sounds "celebrate a connection to the real world" (1994: 104).

... when we listen to a processed realworld sound, and recognize it as such, we regard the composer as 'doing' something to familiar material. Processing becomes an activity that guides, and changes, our previous understanding of the source; it offers an interpretation.... in offering a new interpretation of something that, nevertheless, remains "known" from reality, realworld music invites us to deploy, and develop, "ordinary" listening skills; it encourages us to feel that we are involved, and participating, in the creation of a story about real life. (1994: 104) Norman emphasizes that even when the recordist does not speak, signs of his or her intervention in the field recording still exist as traces of a presence. For instance, in her discussion of Michel Redolfi's *Desert Tracks*, she says:

In his recordings the sounds culled from the California desert are at times inseparably fused with the signs of his intervention: sounds travel as he moves the microphone about, we hear the sound of the microphone being handled, scrunching gravel, a rock moved and replaced. In fact all the natural but tell-tale signs of a mediating human being who in his quest for the "desert tone," literally scratches the surfaces to activate aurally reticent surroundings. He is very much a storyteller who leads us through the tale: his "metanarrational" presence becomes part of his material, and part of his subject. (1994: 106) This metanarrational presence transmitted partially through the perceived motion of the recordist through the space is similar to the presence I hear in Westerkamp's field recordings for *Gently Penetrating...*, and why I refer to them as soundwalks (even though she would not). In the sections of the piece using unaltered field recordings, it is as if I walk with her through the streets of New Delhi, hearing vendors in the distance, approaching, walking by.

Two interesting questions arise in relation to this narrativity and the presence of the recordist: how does Westerkamp create a connection between real world and processed sounds in her studio work; if the composer is telling a tale, are listeners hearing her tale and/or imagining other stories? In order to describe how Westerkamp creates connections between real world and processed sounds, I turn to Tenney's ideas about gestalt perception.

Juxtaposition-transformation and cohesion-segregation

Tenney interprets ideas regarding visual gestalt perception, based on the work of Max Wertheimer, in relation to sonic phenomena (1992: 28ff). The two primary factors producing cohesion are proximity and similarity:

Applied to auditory or musical perception, the factor of proximity might be formulated as follows: in a collection of sound-elements, those which are simultaneous or contiguous will tend to form clangs, while relatively greater separations in time will produce segregations other factors being equal. (1992: 29) ... in a collection of sound-elements (or clangs), those which are similar (with respect to values in some parameter) will tend to form clangs (or sequences) while relative dissimilarity will produce segregation other factors being equal. (1992: 32) When Westerkamp transforms a sound through electronic processing, with the intention of highlighting its musical aspects, she will often place the processed sound in close proximity to the original recording, emphasizing the similarities between the original sound and its transformed version. In my interview with her about the creation of *Gently Penetrating...* (which is discussed in Chapter Ten), she discussed this directly in the case of the scooter horn. This is a technique that I have noticed often in other pieces as well. In *Cricket Voice*, the original cricket song continues through much of the piece, juxtaposed with many transformations. In a transitional section between the beach and dream sequences in *Kits Beach Soundwalk*, the original barnacle sounds are in close proximity to their filtered counterparts.

In most cases, when Westerkamp changes a sound, she focuses on one particular parameter. For instance, she will filter the sound to emphasize high frequencies, or add reverberation to alter the envelope of the sound. Thus, when she places these sounds in close proximity to the original, changing only one parameter of the sound, she creates a

situation in which listeners will perceive the original and processed sounds fusing into one clang or sequence, which has been coloured or highlighted to emphasize a particular parameter, bringing the listener's attention to it.

Another way that Westerkamp uses both proximity and similarity to emphasize cohesion among sound-elements is to group sounds with similarities in certain parameters. For instance, in *Gently Penetrating...*, she groups together clanking sounds on the basis of their similar timbres. In *Kits Beach Soundwalk*, she works with a variety of high-frequency sounds. This grouping together of sounds based on a common element increases the level of subjective intensity experienced by the listener: for instance, with the clank mix in *Gently Penetrating...*, the listener hears a sudden torrent of sounds related by their timbre. This focuses attention on the clank mix, bringing these sounds which formed the background of a sound environment into the forefront of the listener's attention. Then, when they are heard again, they are noticed in a different way.

When the attention is focussed upon one element or group of elements more directly than it is upon others in a clang, the relative musical importance of the various elements must obviously be different, with the less intense elements taking a subordinate role in the total configuration.... The situation here is analogous in many respects to the distinctions between figure and ground in visual perception the figure generally being distinguished by what Koffka calls a greater "energy density," and by a higher degree of "internal articulation" than the ground. (Tenney 1992: 40) By taking sounds that were originally heard in the background of sound environments, and intensifying them by grouping them together or increasing their amplitude, Westerkamp makes them more musically important, focuses attention on them, and reverses their position from ground to figure. Listener responses to Westerkamp's works often include commentary on hearing everyday sounds in different ways. Also, listeners comment on their reactions to certain groupings of sounds, such as high-frequency sounds, machine noises, or the sounds of children's toys, indicating a shift of attention from ground to figure in their perception of these sounds.

Yet another way that Westerkamp connects processed and field sounds is through processing one source sound to link with a different source. For instance, in my interview with her about the composition of *Gently Penetrating...*, she discusses hearing a similarity between the scooter sound and a certain gruff quality in some of the adult male voices, a similarity that she intensifies through processing, then juxtaposing those sounds. She also alters one of the pitch-shifted bell sounds to harmonize with part of a vocal sequence. Listeners respond to this through describing a sense of flow in the work, in which sections are not strongly demarcated but there is a constant sense of gradual flux.

Some sounds are processed more radically. Once again, Westerkamp places these sounds in the vicinity of the field recording they are derived from. Because these sounds are often different in more than one parameter, they would tend to be segregated further from the source sounds than from others. Westerkamp generally uses such radical transformations to a more limited extent than other, less radical ones.

Pitch-Shifting, Scale and Interiority

In addition to building on ideas developed by Tenney, I used concepts employed by film sound designers. One of the primary ways that Westerkamp transforms sounds is through shifting their pitch. This process alters the sound scale.⁴ As well as changing the speed of movement through the envelope of a sound, which changes its time scale, pitch-shifting a sound also changes its perceived scale in space as well giving the impression that the sound is being produced by a larger source for sound files pitch-shifted down, and a smaller source for sound files pitch-shifted upwards.⁵ The amplification and slowing down of small sounds can create an imaginary space where these small sources are enlarged to human scale or beyond. Changes in scale have another perceptual effect as well: a change in focus, as Tenney writes:

We know from our visual experience that a change in scale of a picture of a thing, or a change in the distance from which we view a thing whether it be a picture, a landscape, or the figure of a person can substantially alter the total impression we will have of it.... The full range of this process might be illustrated by imagining a scene say a field of wheat which from a certain distance will appear continuous, having a homogeneous texture that is unbroken by contrasting elements. If one moves closer, this texture will gradually become less and less homogeneous, until at last the distance is so shortened that one's field of vision can only encompass a few of the elements the stalks of wheat. At this point, those elements which before had been absorbed into the larger unit perceived as texture, but not distinguishable separately become whole units in their own right, and the spaces between them are seen as real breaks in continuity. Similarly, if one starts from the original vantage-point and increases the distance from the field, one will eventually reach a point where the whole field is only an element in a larger scene a larger gestalt that includes houses and a road perhaps, and other fields of a different color or texture. Again continuity has been replaced by a relative discontinuity. (1992: 19)

I include such an extensive quote here because it seems so important in relation to Westerkamp's work. As I note in the previous section, she establishes continuity and connection between the sound environment and elements of her composition by juxtaposing sequences that focus listeners' attention on musical aspects of sounds with field recordings that take the listener outward to a larger gestalt that includes other sounds. With pitch shifting, she moves in towards elements of the sound envelope that

are not usually perceived because they move by too fast. By slowing the sound down, she allows the listener to hear greater articulation in these elements. By pitch-shifting downwards octave by octave, she maintains a harmonic connection between the sound sequences (and a timbral connection: the slowed bicycle bell sounds are still heard as bells, but as different bells church or temple bells). Since these sound sequences begin at the same time, the effect is to gradually move in towards the details of the sound, at the same time perceiving more discontinuity as the sequence progresses, and each juxtaposed octave is moving at a different speed through the envelope. As listeners pay more attention to these details, the larger gestalt of the original recordings moves further out of focus, enabling Westerkamp to use the later portions of these sequences as transitional points in the work.

When Westerkamp shifts the pitch of a sound, she changes its character more than with the subtle transformation of adding reverberation or filtering. Pitch-shifting downward (also known as time-stretching), like its analog counterpart tape-speed change, focuses attention on the envelope of the sound, since the effect is to slow down the sound, moving through onset, sustain and decay over a longer period, allowing the listener to hear the intricacies of the sound. Just as a microscope allows a viewer to see the internal microstructures of an organism, pitch-shifting allows a listener to hear microstructures in the evolution of a sound through time metaphorically speaking, to hear the inside of a sound.⁶ While I am referring here to the perception of the sound, this feeling of interiority seems to be associated in listeners with human mental and physical states as well as with the sound itself. This concept of movement between inside and outside, internal and external states, is one that arose repeatedly in listener responses to sections of Westerkamp's work in which pitch-shifting is used. Listeners would write about dream states, fantasies, and movement from internal to external environments, and sometimes specifically associate these movements with slowed (time-stretched or pitch-shifted) sounds (see particularly *Gently Penetrating...*, *Breathing Room*, and *Cricket Voice*).

David Schwarz discusses a similar movement between internal and external states in the music of Steve Reich, focusing on his works *Different Trains*, *It's Gonna Rain*, and *Come Out* which, like Westerkamp's work, use recognizable environmental and vocal sounds as well as transformations of those sounds in a compositional process. Schwarz refers to such music as creating a "sonorous envelope" that activates the imagination, which he associates both with the mother's voice and the womb, associations which Westerkamp explores in *Moments of Laughter*. Schwarz defines the sonorous envelope in terms of lack (of binary opposition, structural markers, and regular phrase structure), whereas I would describe the same music by Reich in terms of its focus (on timbral qualities, gradual transformation, rhythmic shifts) facilitated through repetition. However, what is most interesting about Schwarz's discussion is his insistence that this movement between interiority and exteriority can be experienced as positive or negative:

The relationship between the sound of the maternal voice and the infant within the sonorous envelope is paradoxical. On the one hand, envelopment suggests undifferentiated, oceanic, expansive oneness; on the other hand, it suggests being contained, enclosed, and marked off. Thus, the sonorous envelope can be either a positive or negative fantasy. (1997: 277). This quote is particularly interesting in relation to some listener responses to Westerkamp's work as unsettling or disturbing. Recently, when I gave a paper on Westerkamp's *Cricket Voice* at Concordia University, Paul Thÿberge suggested to me that some of the listener responses that indicated disturbance or fear may be because of a fear of "going inside," a movement that many listeners experience in relation to Westerkamp's work. I thought this was an interesting suggestion: when I read Schwarz' article a few days later, the connection was more obvious. Schwarz makes reference to Freud's conception of the uncanny:

Freud discusses the uncanny not in terms of a binary opposition between the comfortable, familiar world "inside" (the mind, the home, society, etc.) and a threatening, external, evil force. Rather the uncanny seems to emerge out of what had been familiar. Freud discovers this dynamic within the etymology of the word heimlich (familiar, in German). Freud realized that the word first meant "familiar" "trusted" and slowly acquired additional connotations of "secret" and "hidden." (1997: 289, his emphasis) When a sound is slowed down, its internal workings are revealed, and what was familiar becomes unfamiliar. For some, to "go inside" a sound, to move from a feeling of exteriority to one of interiority, can seem threatening and constraining (see especially "Alien-ated Responses" in the *Cricket Voice* chapter).⁷ For others, this is a positive experience that can enhance movement from exteriority to interiority in their daily lives: for instance, many listeners spoke of Westerkamp's work as being meditative, indicating a movement towards a focused and clear internal state.

A new place sings back

I want to transport listeners into a place that is close to where I am when I compose, and which I like. They're going to occupy that place differently, by listening to it differently, but still, it's a place. HW

Westerkamp begins with a specific place the location of recording. Through the process of composition, a new place is created which is connected to the original location, transformed through Westerkamp's experience of it, and by her compositional choices. This creates a work that says something about the place, while leaving room for listeners to inhabit it in many different ways. In the chapters that follow, I will consider listener responses to five of Westerkamp's pieces.

Electroacoustic Music Analysis and Listener Responses

A way of achieving the goal of focusing both on the acoustic and psychoacoustic phenomena of musical works, as well as their meanings to various listeners, is to integrate a musical analysis based on listening to all parameters of the music with a wide variety of listener responses. Michael Bridger's (1989) approach to the analysis of electroacoustic music, borrowing from Roland Barthes's *S/Z*, claims to integrate empirical investigation with listener responses. It appears from the article that his listeners are his electroacoustic music students.

Bridger, like others, points to the absence of a score as a problem, but solves it by developing a simple graphic notation. Initially, he attempts to graph all features of the music, but decides that this approach is too complex. He then decides on salient features of the pieces, relying on what attracts listeners' attention:

it is perhaps not surprising that appearances in the music of identifiable elements of conventional music, or the human voice, or of recognisable concrete sounds were three characteristics that seemed always to attract listeners' attention. Three further characteristics, this time not of sound types, but rather of ways of organizing, differentiating, developing that material into expressive statements (again derived from discussion with listeners) were location, dynamics (interpreted broadly to include both volume and activity levels) and those recurrences, juxtapositions or transitions that were perceived as having structural significance. In total, then six 'codes of signification' emerged.... (Bridger 1989: 148, his emphasis)

Bridger's work is an important expansion of electroacoustic music analysis in its attempts to synthesize methods of analysis from music and other disciplines, by its analysis of several parameters, extending analytic focus beyond pitch and tonality, and by its inclusion of salient features identified by listeners. My own approach differs from Bridger's in that while he analyses the music depending on what listeners hear as salient features, I attempt a deep descriptive analysis of each piece, attempting to mark as many features as possible, then compare my analysis with other listener responses.

When I read Bridger's work, I wonder who these listeners are? How many are there? How old are they? What is their cultural background? Their gender? What level of musical training do they have? All that Bridger tells us is that he led discussions:

Having been involved in teaching aspects of electroacoustic music to undergraduate students for many years, I decided to take whatever opportunities I could to develop not only views on this music, but also a framework for eliciting those views, less from my one [sic] prejudices, judgments and speculation, than from discussion and empirical investigation. (Bridger 1989: 147)

So these are listeners in Bridger's music classes, taking part in discussions with their professor. This is a particular interpretive community, as described by Stanley Fish (1980), a community which has particular assumptions, aims and concerns. Fish claims that interpretations are shaped by the institutional forces of a particular community. One particularly interesting account in his book is the claim of a student that she could pass any course in the English department by focusing on interpretive routines that were currently acceptable: nature vs. culture, large mythological oppositions, the fragmentation of the author's own anxieties and fears, and so on (1980: 343). If one accepts the power of institutional forces within an interpretive community, it would follow that open discussions with a professor in his class would be likely to affirm the professor's value judgments, rather than questioning them. In his article "Rethinking Contemporary Music Theory," Patrick McCreless argues that members of a discipline (he is talking about music theory, but the argument could apply to other academic disciplines) tend to be motivated to maintain the boundaries and assumptions of that discipline through validation of those boundaries and assumptions:

That is, internalized structures of disciplinary power serve as a force to motivate individuals to define themselves within the discipline by "producing," so that by thus strengthening their connection to the discipline, they strengthen the discipline itself both by expanding its knowledge and by validating its hold upon them. (McCreless 1997: 33) It is interesting to note how the values and assumptions that I discussed in Chapter Three are reinscribed by Bridger's analytical project. I will follow some of his references to John Cage's *Fontana Mix* in comparison with other works in the selected group, showing how value judgments about Cage are reinforced and maintained.

the fragments of voice in *Fontana Mix* are assumed to be randomly overheard snippets, removed from the original contexts that could have created a sense of personal expression; in contrast, the electronically processed fragments incorporated in [Karlheinz Stockhausen's] *Telemusik*, though similarly transplanted into the composition, somehow do preserve a quality of communication at a primary level. (Bridger 1989: 151) Here Bridger implies a listener's point of view when he says that the vocal fragments "are assumed to be randomly overheard snippets." He tells us that the Cage piece does not communicate to the listener in contrast with Stockhausen's work which communicates on the basis of a sense of personal expression. But who is the listener here? He does not say.

In *Fontana Mix*, some of the most striking ingredients are the fragments of choral and

orchestral sound that make fleeting appearances, but as with the voice elements mentioned above, the immediately apparent structural principle of random collage denies the possibility of a committed emotional response. The brief fragment of organ music, strategically placed towards the end of *Poème électronique*, on the other hand, creates both by its placing and the clearly intentioned repetition a much more telling impact. (1989: 152)

In this quote, collage appears as random, not as structured chance procedures, set against the strategies and clear intentions of Varèse's work. Who has decided which ingredients are most striking? Whose emotional response are we talking about? Which listeners? They remain inaudible.

The barking dog at the end of *Fontana Mix*, and the similarly placed sound of a plane taking off in *Poème électronique*, establish a sense of impending closure (presumably by design in one case, by accident in the other!). (1989: 153) Just in case we did not get the point earlier, he repeats the opposition between Cage and Varèse.

Except in the case of *Fontana Mix*, which eschews formal, progressive structure in the case of indeterminacy of its collage, the pieces display many of the traditional concerns of any composer, of this and earlier epochs, in shaping material into convincing aesthetic and expressive designs. (1989: 157) The focus here has shifted entirely from listening to the concerns of the composer, specifically a definition of composition in which indeterminacy apparently does not fit.

A revolution even more epic in scale, if ultimately less productive, was made by *Fontana Mix*, with the quantum leap of its evident abandonment of structural intentionality making a massive shift to a qualitatively different philosophy of musical structure; the other formal innovations in the works involve new methods of structuring, but do not redefine the value and role of structure itself. (1989: 157) Here, Cage is given his due as a composer who led a revolution "epic in scale," though it is still qualified as unproductive. In the final sentence, Bridger describes Cage's work as redefining the value and role of structure itself, rather than as redefining the value of intention in structure, i.e. creating structures built on non-intention. Again, the focus is on the role of the composer. The listeners, only ever appearing as an undifferentiated group, have completely disappeared from the discourse.

The focus in Bridger's discussion remains exclusively on the internal workings of the music, with no references to meaning:

Even when not specifically intended to do so by their composers, works in a medium that encompasses categories of sound primarily associated with 'real-life' rather than 'artistic' activity are likely to suggest programmatic or descriptive analogy to listeners. In view of this, it is perhaps remarkable, even a tribute to their composers' handling of the medium, that these particular works did not seem to evoke stronger extra-musical images. Only [Luciano Berio's] *Visage*, with its overtly quasi-dramatic ambience, creates a consistent and persuasive sense of narrative, and, because of this, more abstract qualities of structure are somewhat eclipsed as the listener's attention is engaged by the episodic event-flow expected in an idiom akin to film or radio drama. (1989: 158) Here, he acknowledges that one work does elicit meanings, but does not consider them worthy of notice: he does not say what those meanings are.⁸ He praises the composers for avoiding the suggestion of descriptive analogy, yet I would suppose that students aware of Bridger's beliefs about music and self-referentiality would be unlikely to discuss any images that they experienced. While Bridger's work is valuable as an exploration into the incorporation of listeners' responses, this annexation of listener responses remains at a superficial level, not really disturbing the discussion of accepted knowledge within the electroacoustic community, and the assumptions that support it. My study incorporates listener responses in a much more integral way. I include responses from a wider range of interpretive communities, facilitate frank discussion through the use of pseudonyms in individual written responses, and represent more of the listeners' voices through reference to extensive quotes in their own words.

To some extent, I have been guided in this by feminist studies. Analysis of electroacoustic works within feminist musicology does attempt to include discussion of meanings as well as the internal workings of the music. Susan McClary notes the importance of this approach in her analysis of work by Laurie Anderson:

Most of the analytical techniques that have been developed in academic music theory slide right off her pieces. Because much of her music is triadic, the harmonic theory designed for the analysis of the standard eighteenth- and nineteenth-century repertoires might seem relevant. But all harmonic theory can do is to label the pairs of alternating chords that often serve as the materials for her pieces. (1991: 135) McClary's approach goes beyond harmonic analysis into a discussion of critical theory as it relates to gender, technology and the body in performance, situating Anderson's work socially and politically as well as musically. At the same time, McClary's own analysis of Anderson's "music itself" (1991: 139ff), like traditional harmonic analysis, focuses much more on pitch and tonality than on other parameters of the music such as timbre and rhythm. She discusses the social meanings of pitch and tonality, but does not extend her analysis, except in passing, to other aspects of the musical language. Also, in McClary's work, while there is significant focus on the listening process, it is McClary's listening. A wider variety of listener responses is not included.

Reception Theory and Listening

Reception theory emerged initially in literary theory as a project to problematize the traditional supremacy of the author's intent, and to provide a space for the consideration of how readers read texts, how they change texts through their interpretation of them.⁹ Although initial work in this area focused either on the nourishment of an 'ideal reader' who would be well-informed enough to appreciate a work, or on the mediated responses of mass audiences, constructed statistically, more recent work has focused on particular individuals and their shifting relationships to various interpretive communities.

It is this more recent work that interests me the most, because of its emphasis on individual voices within different community contexts. In earlier research projects,¹⁰ I have worked using a research method based on listening and responding to issues raised by informants, making use of "generative themes," a term used by Paulo Freire (1983, 1988). Freire advocated literacy education based on the concerns of the students, and the development of critical awareness of their socio-political position through discussions which were built around themes that were generated by the participants' concerns. I was also influenced by "respectful intervention," an approach used by Fr. Gerry Pantin (1982) who led the community group SERVOL in Trinidad, a group that was the focus of my educational research in 1986. SERVOL had achieved great success from grass-roots beginnings by focusing on listening to people, and responding to issues that they raised. Important aspects of respectful intervention are a focus on issues raised by people in the community, the balancing of the researcher's voice with those of the research subjects, and a respect on the part of the researcher for the ideas and experiences of those people.

When my research interests shifted to focus on gender and technology in the late 1980s, I was drawn to the work of Evelyn Fox Keller, particularly her writing about Barbara McClintock, one of the three women scientists whose epistemology is discussed by Lorraine Code in an earlier quote in this dissertation (Chapter Three, page 121). McClintock, a geneticist, spoke of "letting the material tell you," (quoted in Keller 1983: 179) and developing a "feeling for the organism" that showed a respect for her research subjects, and a focus on their particular situation, that resonated with the way that I had begun to do research. I also found Donna Haraway's discussion of "situated knowledges" (1991: 198) useful in her focus on the agency of research subjects, and her suggestion that the production of knowledge be considered as a conversation between researcher and subjects.

Until this point, my research had been from the perspective of adult learning. When I began graduate work in Music and decided to research women composers, I found some useful discussions of dialogic research methods in ethnography¹¹ and feminist research methodologies.¹² I experimented with methods of ensuring consultant interaction in my Master's thesis in Music at York University (McCartney 1994). In that work, I interviewed fourteen women electroacoustic composers from across Canada, and discussed their lives and compositional approaches. An important part of that project was to communicate with all the consultants after the initial draft was complete, sending them drafts of sections including their quotes and my interpretations of those quotes, in order to allow them to make editorial changes: editing their quotes; deleting any information that they did not want to divulge publicly; and polishing the style so that they were not the raw complements to my very cooked writing. This ensured that they had some measure of control over editing processes, so that I was respecting their wishes while representing them and developing my own lines of thought. With the present study, I have extended my consultation process to include an ongoing conversation with Westerkamp, and have attempted to construct dialogues with listeners about her work through the use of extensive quotes.

My respect for the voices of research subjects is similar to the respect shown by Westerkamp for the voices of the places that she records. In her work, these voices remain in balance with her transformations of them, and retain an important place in her works through the use of unchanged field recordings as significant components of the pieces. My own research work includes long quotes from research participants, and discussions of issues raised by them, in ways that are intended to reflect my respect for their diversity and for differences from my own views. I attempt to maintain a balance between the voices of my consultants, and my transformations of those voices through my interpretations of what they are saying and how they relate to each other.

In much the same way as Westerkamp creates a dialogue between her imaginal world and the recorded sounds through juxtaposition of unchanged field recordings and transformed sounds, I wish to create a dialogue between my ideas, issues and explanations and those of the participants in my research. Westerkamp listens to the recordings, hearing emergent patterns in sounds that might otherwise remain in the background, then juxtaposes these background sounds of a similar timbre, melody or rhythm to bring the listener's attention to them. In a similar way, I juxtapose participants' quotes about issues that had not occurred to me initially, that moved from the background into the foreground of my attention as I read through the responses and saw similar issues emerge repeatedly in some listeners' responses. Sometimes I would see a repeated word, such as "essentialism," or a repeated phrase, such as "the miracle of birth." Occasionally it would be a group of related places, such as movements from inside to outside places in responses to *Breathing Room*. At times, related imagery would catch my attention, such as the stories of alien confrontations in responses to *Cricket Voice*. I

grouped these related words, phrases, references to places and imagery, in much the same way that Westerkamp groups sounds with related sonic parameters. It was only after I had made these groupings that I would look for groupings in identity among respondents who had made similar commentaries.

At times, in my readings of responses to Westerkamp's work, I began researching an issue raised in the responses that truly confounded me at first, for example the "alien confrontation" responses to Cricket Voice. I have been concerned at times that I tend to write at greatest length about responses that differ most from mine, seeking what I might refer to as productive dilemmas, searching for those moments of confusion. Jack Mezirow (1988)¹³ writes that disorienting dilemmas result in the most significant and lasting learning, because they change a person's assumptions. Attinasi and Friedrich (1995: 18) refer to these significant turbulent moments as "dialogical breakthroughs," and suggest that the intervention of others' ideas is essential to their genesis. Clearly, this kind of learning excites me. It is a moment of subjective intensity, where suddenly my own ideas are transformed and thrown into a different perspective by others'. I have attempted to balance this excitement by making sure that productive dilemmas are not the only source of fuel for writing, representing also the voices of those who identify with Westerkamp's approach in a similar way to my response.

Westerkamp wants to leave room for listeners to encounter places differently, depending on their own experiences. In a similar fashion, I wish for the audience to be able to experience Westerkamp's works in their own ways. I ask for open-ended responses, encouraging participants to write in whatever form they like, such as poetry or short phrases, allowing room for a creative response to Westerkamp's work. I ask participants to respond individually, before group discussion and possible consensus.

My desire for diversity of interpretation also influences my open interpretations of listener responses. By quoting metaphorical and imagistic listener responses next to more prose-oriented quotes, I create a dialogue not only between different ideas, but also between different ways of thinking. I believe that writing that uses poetic forms of language as well as more traditional academic forms can offer access to different ways of thinking about issues.¹⁴ Sometimes, after grouping related responses, I ask open-ended questions or suggest several possible explanations for responses rather than defining a single interpretation based on my own opinion. By focusing on the issues raised in the responses, and by speaking to those issues, my intention is to avoid what Ruth Behar (1995: 151) calls the "violence of representation" that pays no regard to what subjects actually say. I wish to leave some space for the reader to construct their own interpretations, based on what I have recorded and presented, in dialogue with a range of responses that are inevitably framed by me, but hopefully not therefore unduly restricted.

My approach to the incorporation of listener responses contributes to the recent focus on specific listeners and their relationships to interpretive communities, and how this constellation of responses can create a more multi-faceted knowledge about a musical work. My pilot project in music reception was a comparison of listener responses to several Canadian electroacoustic works. The design of that project, as well as my thinking about many of the issues that it raised, owes much to the recent work of Karen Pegley,¹⁵ whose approach, based on group reception, questionnaires and individual interviews of respondents to Madonna's *Justify My Love*, is enticing both due to its focus on actual listeners and to her direct engagement with issues in music that are at once controversial and sensitive. I decided for this initial project to concentrate on works that seemed to test the boundaries of acceptability in some way: acceptability as music, or as electroacoustic music. One such type of work is the controversial, the focus of argument and debate, of booing and cheering. I think here of just a few well-known examples from other types of music: the initial reception of Stravinsky's *Rite of Spring*, Bizet's *Carmen*, or many of Madonna's concerts. When a piece or a performance becomes controversial, it inspires public debate over aesthetic, epistemological, and ethical issues. Even though controversy involves criticism as well as approbation, it holds the possibility of reinforcing canonic representation, if not initially then perhaps eventually, through the attention accorded both the composer and the work.

Some works inspire controversy, while others seem to evoke no response. "Silence" is ambiguous: a dictionary definition of the noun includes absence of sound, stillness, absence or omission of mention, the state of being forgotten, oblivion, concealment, secrecy. The verb "to silence" implies the overpowering of one by another. Elizabeth Long (1994) notes that in the textual communities of reading groups, silence is used as a form of control by group members to discourage certain reading directions. Composers I have talked with attribute silence about their pieces to embarrassment, ignorance, lack of caring, and avoidance of issues, but are never sure what people mean by their silence. I do not know of an instance where silence about a piece has given it canonic status. Silence can also mean not worthy of attention; one of my respondents questioned whether these pieces were worth studying. This is the assumption that I think underlies the relations among controversy, reception, and silence. Marcia Citron says:

[Reception] serves as the framework in which pieces are reviewed and marked off for attention. This attention implies that the work must be worthy of attention and therefore important. Even if the assessment is negative, an implied significance is present that is missing when a work is not reviewed. Attention in print [or other media] can lead to further performances and potential canonicity. (Citron, 1993: 168) One of the most interesting pieces in the group of works from this initial project in relation to controversy and silence

was Westerkamp's Moments of Laughter. While the initial public response to this work was fairly muted, with only a few listeners reporting to Westerkamp that they found it "too personal," the anonymous listener responses to this work in my study were sometimes strongly worded, almost hostile, indicating some of the controversial issues that may lie behind the silence of some audience members.

These reactions also point out an advantage of my approach to listener responses. I ask listeners to respond in writing, using a pseudonym. I do not ask any specific questions about the work: "these responses can be in any form phrases, paragraphs, poetry... and about any aspect of your listening: musical structure, imagery, memories, places that the piece evokes" (listener response form). This format, to a certain extent, frees listeners from the constraints of a listening community, emphasizing individual response. They know that they are speaking to me, but that in most cases, I do not know who they are. Often, in discussions after a listening session, people would express less oppositional viewpoints, and would certainly use less loaded language. But in the written responses, protected by the cloak of a pseudonym, sometimes they would be quite unconventional or brutally honest about their reaction to the work. These responses, while sometimes disturbing, provide important clues to the range of attitudes that inform musical values.

The pseudonyms allow respondents to create an alternate identity if they wish. For instance, some women chose a "masculine" name, such as David, or Ralph. Although some men chose ungendered names such as Rusty, none chose a "feminine" name. Many respondents chose flamboyant names such as "Malaclypse the Younger." In some cases, they had literary associations, such as Ishmael.¹⁶ Some did not include a name, in which case I would give them one. Sometimes the names chosen by respondents had an uncanny connection to their attitudes: the young man who shouts (in his words) "Shut up lady!" in response to Westerkamp's Moments of Laughter calls himself "Biff," a combative¹⁷ pseudonym that conjures up for me an image of a cocksure young tough.

While the anonymity of the responses encourages individual reactions to works, slowing the movement towards consensus that characterizes group work, similarities among groups of responses did emerge. For instance, many women's studies students were concerned about essentialism and several electroacoustic composition students made comments about the use and extent of electronic manipulation. Another issue is the extent to which particular works appeal to different groupings or interpretive sub-communities of respondents.¹⁸ Marcia Citron says that an intended audience is already inscribed within a musical work:

Such a figure is no socially neuter presence, but rather an individual defined by social location, especially gender, class, nationality, sexuality, and race. This does not mean that the piece holds less meaning for some other kind of respondent, but rather different meaning. (1993: 174, her emphasis) Citron goes on to ask whether there is such a thing as a woman's response to musical works. She notes the problem of essentialism with such a question, and discusses how postmodern theorists claim that anyone can read or listen "as a woman." Citron insists that the political position of women, more than their biology, can affect their listening. While listeners are certainly affected by their political positions, it is important to note that any listener responds not only in relation to one political location, but to a constellation of them. For instance, a listener in my sample may at one point be responding influenced by her identity as a woman, at another as an immigrant to Canada from Vietnam, at another as a music student, at another as a composer, at another as an adolescent, at another as a lesbian, at many points influenced by some combination of these identities.

The ability of a listener to speak clearly from any of these positions is differently constrained and enabled, depending on the privileges and limitations associated with each position.¹⁹ For instance, electroacoustic composers and composition students were more likely to articulate clear commentary on the musical structure and compositional strategies of Westerkamp's works. At the same time, their focus on musical structure sometimes led them to exclude other aspects of the work, such as the meanings of sounds or imagery related to sounds: composer McCreless, reading Rose Subotnick, notes that it is not just focus that may be at work here: structural listening is more highly valued in music theory than listening for meaning:

... structural listening, at least in its more limited forms, is self-reflexive and hermetically sealed from social issues.... Subotnick rightly charges that our educational system has for years insisted on structural listening at the expense of socially aware listening, and that if our system of values prizes the former excessively over the latter, young musicians will remain insensitive to extramusical meaning, or, alas, like many music theorists, simply ignore it. But structural listening does not logically or perceptually exclude other types of listening. (1997: 47) McCreless goes on to assert that it is not necessary to make a choice between structural and socially-aware listening: both can happen, if the analyst considers both worthwhile, and the musical analysis will be enriched as a result. However, in the case of my listening sessions, most respondents only had the opportunity to listen to a piece once. In this situation, I would suggest that they tended to return to strategies that were most familiar to them in the case of electroacoustic composers, structural listening.

A more radically restricted listening occurs when listeners decide that a piece does not count as music: at this point, they appear to stop listening for musical aspects. The attitude that the piece is not music prevents them from hearing its musical structure at all. This happened with some of the electroacoustic composers: even though they clearly

had the skills to articulate a musical structure, they stopped using these skills at the point that they dismissed a piece as "not music." At the same time, electroacoustic composers are generally privileged as authoritative listeners to electroacoustic music: as insiders, trained and skilled practitioners, they are considered as experts.

Listeners without such highly developed musical skills generally made more tentative and less detailed commentary on musical structure. Not considering themselves skilled authorities as structural listeners, their responses tended to be more muted. My approach in the analyses is to juxtapose these briefer, more muted responses with more detailed and articulated descriptions of the musical structure, indicating points of similarity and difference. This tends to amplify these more muted responses, through juxtaposition with those of experts.

I was fortunate in this work to have access to a number of interpretive communities, who were able to contribute differently to my understanding of a range of listener responses. For instance, the 'restricted listening' of students in a graduate course in Women's Studies tended to focus primarily on concerns about gender identity, essentialism and gender stereotyping. The more articulated responses in this group were used in juxtaposition with less clearly articulated responses by others which I read as gender issues. Following Beverley Diamond in her discussion of musical life stories on Prince Edward Island, I refer here to those less articulated responses as "enacted":

... if an interviewee said that her father played the fiddle and, further, that s/he didn't know why women didn't play very much, that was regarded as an articulated gender issue. However, if a consultant simply described male fiddle players without drawing attention to the gender specificity implied by the description, this was considered an "enacted" gender issue. The distinction may seem pedantic but it served as a tool for examining patterns of gender awareness. While everyone "enacted" gender issues in their musical dealings with other people, only a limited number "articulated" gender issues in relation to very specific experiential contexts. (Diamond 1999: 5) Using this term makes the important point that gender issues do not disappear because people are unable or unwilling to articulate them. They are still there, taking place silently. When they are understood as enacted, it brings these issues to the attention of the researcher even though the respondent may not recognize them as such.

Similarly, an undergraduate class in ethnomusicology was more aware and articulate about issues of race and class, as well as gender, than were other listeners, and tended to focus more on these aspects of the music. Again, I included their articulated responses in tandem with enacted responses about the same issues. Another group, the adolescent girls, were much more articulate about memories of family in relation to Moments of Laughter than other groups in my sample. I was able to use their responses both to amplify less articulate responses about family life in other groups, and to problematize this difference among respondents.

In the previous paragraphs, I note a persistent interest in disciplinarity and how it affects listening. This is likely an increased concern because most of my listening sessions took place in university or high school classrooms. I did make concerted efforts to expand this listening sample, such as asking for responses on the internet, writing personal letters to people in India who had heard Westerkamp's music, playing pieces on the radio and asking for responses, making listener response forms available at several concerts of Westerkamp's work. The amount of effort involved in these approaches was considerable, yet I accumulated a much smaller number of (sometimes quite brief) responses in comparison with the results from large "captive audiences" available in educational institutions, who tended to write extensive responses. I have often been critical of surveys that are limited to academic institutions. Having now done such a project, I am more sympathetic than before, realizing the very practical considerations involved.

While I am interested in differences and similarities among the responses that I received to these works, my main interest is how they add to my knowledge about the pieces of music and the issues raised by the music. My juxtaposing of responses from listeners of different disciplines is an attempt to balance the restricted listening associated with each discipline. As throughout this dissertation, I am attempting to move towards objectivity not through removing myself from the object of study, but by using each piece of music as a way of sounding out a range of responses that will amplify and complicate each other, recognizing that each respondent is, in Lorraine Code's (1991) terms, a "second person"²⁰ who can add in some way to an understanding of the particular musical piece, as well as a range of other issues related to it. The knowledge thus gained is still limited by the fact that most of the responses originate in academic institutions, by the fact that most of my respondents are Canadians, and primarily by the fact that only one person is framing them. While my committee guides me well, and Westerkamp has been very generous in reading and responding to my work, the analysis is mine. I comb through the database, select parts of responses in relation to issues that I have noticed, juxtapose them and discuss similarities and differences among the responses.

So how is my listening reduced? I am a white European-born woman, as is Westerkamp. We both spent part of our childhoods in institutional environments: for Westerkamp, a factory; for me, a hospital. We immigrated to Canada within days of each other, have both married, had children, divorced, struggled to find our creative voices, and found a space to do that in soundscape composition. How much of this experience was inscribed into the relatively abstract piece Cricket Voice,²¹ which outwardly does not seem to be

about any of these things, except the last? How much do these similarities in our experiences make me the inscribed listener that Marcia Citron writes about? Certainly these connections affect me as an analyst of her music. My responses to most of her work have been overwhelmingly positive: I still listen to it with joy, after spending months listening intently and writing about it.

In order to describe Westerkamp's music, I have engaged in analytical description, attempting to understand the musical structure by hearing its major sections and its overall shape. I have brought together listener responses, searching for common issues that emerge throughout. I have also attempted to understand her approach to music by working in similar ways myself. My interest in participatory research began with my experience as a student in Cultural Studies at Trent University in 1983, where many courses integrated theoretical and practical components. My learning in this situation was much deeper and more significant than it was in purely theoretical or purely practical courses. Since then, I have attempted to integrate creative participation into all my research projects, and to seek out learning and teaching situations that emphasize praxis.²² My creative engagement with Westerkamp's work took me along several related paths. In the development of my electronic installation, *Soundwalking Queen Elizabeth Park*, I joined Westerkamp on a soundwalk, listening with her, then composed pieces about the park using compositional techniques similar to Westerkamp's. I also rehearsed and performed *Moments of Laughter*, learning to produce the sounds described in the score, and feeling the emotional intensity of this piece each time that I went through it. This allowed me to experience a number of different roles in relation to Westerkamp. The complexities of these roles emerged in my performance of *Moments of Laughter* in Chicago, as part of a larger performance that also included several of my own works. There I was acting as performer, composer and musicologist simultaneously. In the *Soundwalking* installation, I was working with Westerkamp's recording. I thought a lot about her statements about treating sounds with respect, as I worked with the sounds of her presence within that place. Also, the process of making this installation led me to discuss my own compositional process, and to acknowledge how it differed from Westerkamp's as well as how it was similar.

My approach to understanding Westerkamp's work has involved many different kinds of dialogue: between myself as listener, musicologist, composer and performer and her as recordist and composer of the works; between her approach to composing and my approach to analysis; and among the ideas of other listeners, my own ideas, and those of scholars writing about issues raised by responses to the works. These dialogues shape the interpretations of the pieces that form the focus of the next five chapters.

1 For instance, theory classes in many university undergraduate programs maintain a primary focus on harmonic analysis.

2 Ann Basart's bibliography of electronic and serial music has a section entitled "Analysis and Theory" for serial music, but no such section for electronic music, indicating the dearth of analyses in 1963. However, by 1984, there were a few available, for instance Larry Polansky's analyses of James Tenney's early electronic works (Polansky 1984).

3 Although the emphasis on pitch (and to a lesser extent, rhythm) in traditional scores encourages analysts to focus on these aspects to the neglect of others which are more difficult to notate.

4 I am applying this term as it is used by film sound designers. Rick Altman defines it: the apparent size attributed to characters and objects by the characteristics of the sounds they make (1992: 252). 5 In the *Cricket Voice* responses, there are references to "giant crickets" when Westerkamp slows down the cricket song.

6 I have heard several composers refer to this: Barry Truax talks about hearing the inside of a sound in reference to granular synthesis, which, like tape-speed changes, moves through a sound more slowly. Also, Wende Bartley has used similar terminology, referring specifically to the microscope analogy that I use here.

7 Westerkamp moves between interiority and exteriority in her works using a variety of means. *Moments of Laughter*, for instance, explores the boundaries of private and public, external and internal, subjectivity and objectivity, by examining the sonic relationship between mother and child, normally considered private, in the public realm of the concert hall. In *Cricket Voice*, she also uses spatialization to move sounds around the listener, circling in close, and at times appearing to move sounds through the listener (this is particularly apparent using headphones). Also in *Cricket Voice*, interior spaces are evoked through the amplification of Westerkamp knocking on and stroking various types of cactus, gestures that reveal the inner resonances of the plants. However, I focus on pitch-shifting here because it seemed to evoke the strongest responses from listeners.

8 This assertion that meaning is not important is also found elsewhere in the field of music theory, an attitude criticized by Walter Benjamin. Writing in 1988, in his article "Canadian Music and the International Marketplace," Benjamin finds limitations in music theory based on excessive attention to formal rules, as well as a lack of focus on both sound and meaning: "Training in music theory has undergone a revolution in recent years, but it too is plagued, in its treatment of new music, by limitations. One is an undue preoccupation with music as strings of symbols generated via formal rules; another, which complements the first, is a lack of understanding of music as an acoustical, or psychoacoustical phenomenon, as sound structure rather than symbolic string structure;

and a third is a reluctance to come to terms with music as having meaning including various kinds of extra-musical meaning." (1988: 129)

9 For an introduction to the major thinkers in reception theory, see Holub, Robert C. *Reception Theory: A Critical Introduction*. New York: Methuen, 1984. Holub discusses the ideas of many German theorists starting in the '60s, particularly Jauss and Iser. He also follows the roots of their thought in Russian Formalism, the sociology of literature, and Prague structuralism. In another section, he discusses alternative models developed through communication theory, Marxist reception theory from East Germany, and empirical reception theory. For an introduction to contemporary work in cultural studies, see Cruz, Jon, and Justin Lewis, eds. *Viewing, Reading, Listening: Audiences and Cultural Reception*. Boulder, CO: Westview, 1994, which considers broad questions of representation in cross-disciplinary research. This book does focus more on viewing and reading than on listening: there is only one article on music, and although another refers to MTV in the title, the article itself focuses on visuals. See also Hall, Stuart. "Encoding/Decoding." In *Culture, Media, Language*, ed. S. Hall et al. London: Hutchinson, 1980. Empirical texts are more common in literary studies than elsewhere, and seem to concentrate on nourishing the 'ideal reader.' See, for example, Anderson, Philip, and Gregory Rubano. *Theory and Research into Practice: Enhancing Aesthetic Reading and Response*. Urbana, IL: National Council of Teachers of English, 1991. For reception issues in music, see Leppert, Richard, and Susan McClary, eds. *Music and Society: The Politics of Composition, Performance and Reception*. Cambridge: Cambridge University Press, 1987. This anthology, while important because it brings questions of reception into the musical realm, considers mostly historical and theoretical issues. Any responses discussed are in the published domain. Marcia Citron's *Gender and the Musical Canon*. Cambridge: Cambridge UP, 1993, considers questions of reception in music, particularly as they relate to canonicity. Again, responses are from published texts. Judith Vander's *Songprints: The Musical Experience of Five Shoshone Women*, Chicago: University of Illinois Press, 1988, is an excellent example of how long interviews with respondents can contribute to a deeper understanding of musical culture. Robert Walser's *Running With the Devil: Power, Gender, and Madness in Heavy Metal Music*, Hanover: Wesleyan University Press, 1993, also refers to individuals' musical experience, including quotes from fans' letters to music magazines, and the results of a survey Walser conducted with fans at concerts. These results are in summary form.

10 "Perspective Transformation: The Development of a Critical Method to Introduce Learners to Computers." Master's degree in Adult Education, St. Francis Xavier University, 1990; Science and Technology Careers Workshop, Trent University 1987-1992.

11 For instance Clifford and Marcus, 1986; Sanjek, 1990; Minh-Ha, 1991; Tedlock and Mannheim, 1995.

12 See for instance Anderson and Jack 1991; Shulamitz 1992.

13 Another author who influenced my Adult Education work during this same period.

14 The enjoyment and challenge of unusual ways of writing is part of the reason I am attracted to the writings of John Cage (1961), Trinh Minh-Ha (1991) and Luce Irigaray (1991), as well as the school of "ethnopoetics," particularly through the work of Dennis and Barbara Tedlock (D. Tedlock 1972; D. and B. Tedlock 1975; B. Tedlock 1987; D. Tedlock and B. Mannheim 1995).

15 Pegley, Karen. "'Justify Whose Love': Queer(y)ing the Reception of Madonna." Conference Proceedings, International Association for the Study of Popular Music, Havana Cuba, October 6-8, 1994. 16 The narrator from Melville's *Moby Dick* (also the last line in *Blue Lagoon* by Laurie Anderson is "call me Ishmael!").

17 As in cartoon language accompanying superhero fights: "biff! boom! bang!"

18 Information about the ages, genders, ethnicities, and compositional backgrounds of respondents, as well as the locations of listening sessions are summarized in Appendix E.

19 For further discussion of the issues of authority and identity raised in this section, see the anthology edited by Judith Roof and Robyn Wiegman, *Who Can Speak? Authority and Critical Identity*. Urbana, Illinois: University of Illinois Press, 1995. For further discussions of disciplinary and interpretive communities, see the anthology edited by David Schwarz, Anahid Kassabian, and Lawrence Siegel, *Keeping Score: Music, Disciplinary, Culture*. Charlottesville, Virginia: University Press of Virginia, 1997.

20 I discuss Code's formulation of this phrase in Chapter Three, "Knowing One's Place" (p. 3ff).

21 I note in Chapter One that the experience of hearing Westerkamp's *Cricket Voice* had a galvanic effect on me, in fact transformed my life quite fundamentally.

22 Three examples of learning situations are the fourth year Cultural Studies course that I took with Jody Berland in 1983, which included a field trip to New York City (where I met John Cage) and ended with a multi-media performance; the first course that I took at York with James Tenney which was about John Cage and led to my realization of Cage's

Circus On... score; and a fieldwork course with Beverley Diamond which focused on my participation in a summer Computed Art intensive at Simon Fraser University. Situations in which I have taught using this approach include sessions at the Science and Technology Careers Workshop at Trent University from 1989-1993 (see McCartney 1991).

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