

Reflections on James Tenney

by Chiyoko Szlavnic, 2007

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When I heard in March of 2006 that Jim Tenney's lung cancer had returned, I was still processing the very recent death of my mother from breast cancer. Two extremely significant people in my life died within the space of eight months. Both had been crucial to my artistic development: my mother, a visual artist, had instilled in me a very strong visual aesthetic—an organic, powerful sense of form, colour, and layering. Jim introduced me to the concepts of sound as material (the mathematical-acoustical-physiological principles underpinning its consistency), and form as something that could be created by controlling, or shaping, its parameters over time. What was most striking to me back in 1994, as a young composer just starting out, was Tenney's incredible rationality—his ability to clearly explain principles, and everything else he was interested in; his candidness and openness; his contagious enthusiasm; and his generosity with time. The underlying principles for shaping form, which Tenney showed me during my first lesson, have become—in a surprising way—intrinsic to my method. And now, more than twelve years on, what I am most struck by is Tenney's legacy: his large and varied body of compositions, writings, and notes, which contain a myriad of fertile theoretical proposals, representing the activity of an enormously creative mind—a mind that delighted in linking the past to the future, and in

exploring ideas which may well continue to evolve through the countless number of students he inspired and influenced throughout more than three decades.

Tenney's oeuvre comprises a large variety of approaches, ranging from single concept pieces for single instruments to stochastic-based forms for computer-generated music or acoustic instruments; from purely graphic scores to those that are fully notated; from pieces whose basis is a single overtone series (with or without electronic processing) to those without any direct harmonic control; from aleatoric systems (such as stochastic or ergodic forms, graphic scores, or his use of the I-Ching) to empirically-composed works, including tributes to other composers, such as Conlon Nancarrow or Scott Joplin. Rather than using various modules of pitch and rhythm as the basis for compositions in the traditional sense (or even as "aggregates"), Tenney tended to favour the aleatoric approach, following Cage's lead: individual sounds within a piece were regarded as having a kind of autonomy, except insofar as all events in a work were somehow coordinated by an overriding form—some rules or laws predetermined by the composer.

One of the most impressive aspects of Tenney's compositions and writings is their conceptual clarity: he was very interested in illustrating a formal idea or a clearly delineated experiment in his work. Tenney was a mathematician-composer, and approached the task of composing music as a scientist might—with an idea, a theory, some questions, and a set of variables with which he wanted to experiment and ultimately produce a "solution"—albeit just one solution out of an infinite set of possibilities. Tenney himself was a lucid thinker, able to articulate ideas in the clearest, simplest way, and when he set out to compose a piece, he made sure that his intention was clear from the start.

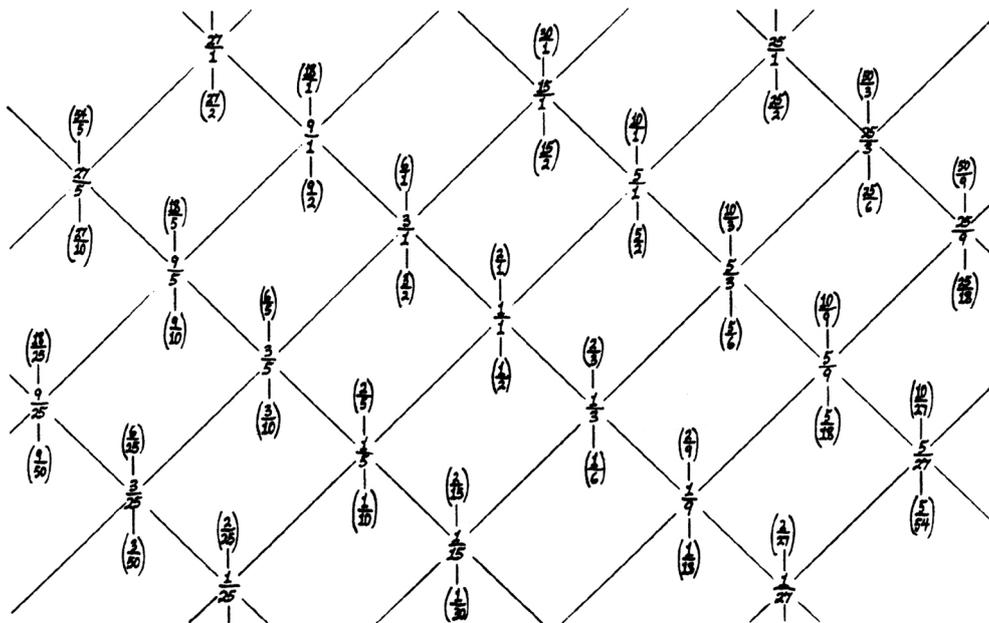
Tenney absorbed and integrated Cage's ideas and language in his own way (as Cage had done with the ideas of Schoenberg, and Zen Buddhism). Cage was a political philosopher-composer, who articulated the logical extreme of musical (conceptual) developments, the kind of revolutionary redefinition of music that previous generations strove for. Tenney, on the other hand, was a practical mathematician-composer, deeply engaged with the human perception of, and occupation with, the innate, structural aspects

of sound. Cage had proposed that the future of musical structure lay in the horizontal (duration), but Tenney, responding to this, reintroduced the imperative that the vertical (harmony) still had a future, that its potential had not yet been exhausted (see Tenney's article, "John Cage and the Theory of Harmony," an essay published in *Musicworks* 27, and in *Soundings* 13, *The Music of James Tenney*, Soundings Press, Santa Fe, NM. 1984).

Tenney's research and longer writings, *A History of Consonance and Dissonance* (Excelsior Music Publishing Company, New York, 1988), *Meta + Hodos*, and *META Meta + Hodos* (Frog Peak Music, Santa Fe, New Mexico, 1988), reflect deep investigations into the nature of sound and form, and human perceptions and conceptions of them. This research enabled him to link contemporary and ancient thinking in his own work, and extend it. Tenney created a living link between Pythagoras-Aristoxenus-Helmholtz-Schenberg-Partch and composers today who are working with ratios, whether they are using the just intonation system, Partch's forty-three degree division of the octave, or any ratio-based system of microtonality, such as that employed by the Spectralists. What is perhaps not unique to Tenney, but has certainly been powerfully elucidated in his writings and compositions, is a firm conviction that the ratio system is still relevant today—that this system not only provides an incredibly fine degree of microtonal control and potential for complexity, but is also directly relevant to human physiology, to our experience and comprehension of frequencies and the acoustic realities of instruments and enclosed spaces. Tenney was absolutely committed to the ratio system as a basis for pitch and harmony because he firmly believed that ratios are directly related not only to acoustics, but to psychoacoustics—to the physiological reality of how the human ear physically responds to sound, and how the mind perceives it. I participated in private seminars for composers which Tenney held in his home, and I remember him dedicating one of those sessions to an explanation of Helmholtz's findings, emphasizing the connection between the principles of acoustics and the physiology of the ear's basilar membrane. Tenney's consistent use of the just intonation ratio system is related to what he calls harmonic identity and pitch recognition, and stems from the conclusions that our tonal system is based on proportions between frequencies, and that our physical experience of harmony is very closely

related to the relationships inherent in simple-term ratios. The mathematical basis of this system, which was central to the development of most acoustic instruments, and to the evolution of music until the last century, provides not only a vast potential of exploration and application, both simple and complex, it satisfies—and still thrills—the basic human experience of listening.

But Tenney was never autocratic about any of the principles or systems he was interested in—he was enthusiastic, without being obsessive. He was also a pragmatist: when composing for equal-tempered instruments, he would simply take their pitch realities into account, and assign pitches accordingly. Tuning is not always indicated in his scores—for example, in many graphic scores. So, although a large number of pieces are based on the overtone series—i.e., they use the concept of the overtone series as their premise—and although Tenney was convinced that this system was one that offered as yet unplumbed potential, he was never exclusive or dismissive of other systems—he simply wasn't interested in them. This quality of Tenney's personality is what made him such an effective teacher: he was purely focused on the ideas at hand, or the score in front of him, without his ego interfering (no outright dismissiveness, no jealousy, no territorialism).



The 3,5 plane of harmonic space as a pitch-class projection plane within 2,3,5 space, by James Tenney

One of Tenney's most profound theoretical proposals, which he continually explored and developed in compositions and writings throughout most of his career, is the concept of "harmonic space," an outgrowth of his work with ratios. Using the ratio system as his starting point, Tenney proposed that each prime could represent an imagined dimension of harmonic space, and that all ratios would, therefore, be neatly connected—directly or indirectly—through a multidimensional lattice of mathematical relationships. Was this n-dimensional concept inspired by Varèse's concept of representing different views of three-dimensional objects in space via sound? Was it influenced by Buckminster Fuller's architecture, and his ideas?

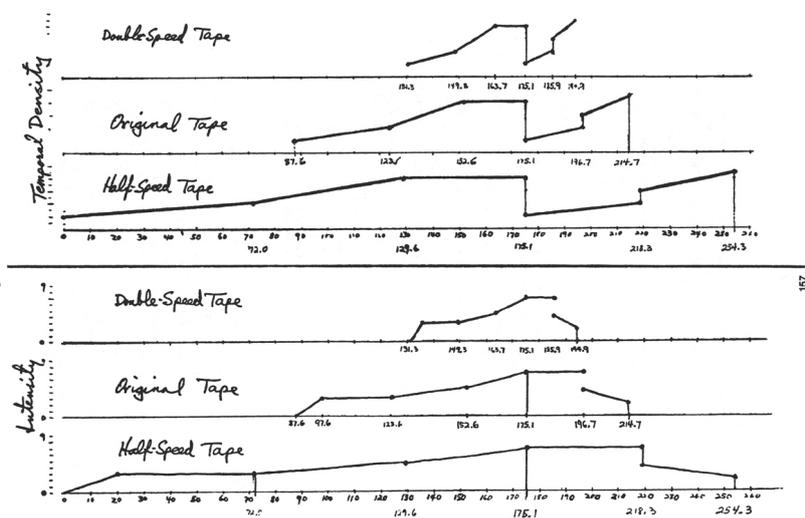


Figure 4. Superimposition of the three analog tapes in the *Noise Study*.

Superimposition of the three analogue Tapes in *Noise Study*, by James Tenney

Probably as a result of his Gestalt-inspired analyses of form, which encouraged the use of graphs to track and represent change, and his association with Varèse, who had been actively scoring details of various sound parameters to represent different perspectives of three-dimensional forms, Tenney developed a method using graphs to shape each parameter of a work. During my first lesson with him in 1994, Tenney encouraged me to use such parametric graphs to develop the composition I was working on. He suggested using graphs to represent the parameters of duration (temporal density), pitch range, and dynamic. (Tenney himself also used graphs to represent timbre and envelope, especially for computer-generated music.)

This multi-levelled structuring method proved to be extremely versatile. The composition I had brought to our session—my second ever—was relatively traditional, yet the method proved effective for the composition's development. I believe Tenney might also have used such graphs to plan—or control—the shapes of his own empirically composed works. But because the parametric graphs represented a set—a limit—of possibilities, from which a computer program would make random choices, this method lent itself well to the aleatoric forms Tenney favoured, and was almost certainly developed to facilitate such compositions.

As a person, Tenney was practical, optimistic, enthusiastic, and unsentimental (not unfeeling), and in his compositions and theoretical writings he avoided unnecessary embellishment or diversion, including any indulgence in personal emotion. He was too fixated on the innate mathematical relationships between sounds, and their correlation in music. He always delighted in processes or musical ideas that were focused, playfully or austere, on the abstract numerical aspect of sound. Tenney's personality is revealed through his particular choice of material, how he regarded it, how he handled it—the kinds of processes he used. Just as in the music of Bach, Schoenberg, Nancarrow, and that of other numerically-inclined composers, the sounds in Tenney's music often seem to proceed by a self-contained logical impetus. Our enjoyment in listening to his music is, in part, an enjoyment of our awareness of a logical process, an idea or a formal progression unfolding over time, as well as pleasure in listening to the sound at any given moment. We can simply enjoy the experience of some kind of form of musical, mathematical, or abstract truth, without somebody's "I" intruding or overshadowing the purity of unadorned sounds.

Part of my affinity with Tenney, and perhaps with this particular generation of American composers, is that I have always most enjoyed composing with limits and producing unembellished works, those reduced to the essential. I find such works to be the most satisfying to listen to. If a work's form and content are heard to be inseparable, and if a work is abstract, i.e., not burdened by clichés, external references, or the composer's emotions getting in the way of the experience of the sound, then I get the most satisfaction out of listening to it. Tenney, upon hearing a recording of the

composition I mentioned above, the saxophone quartet *Papyrus Bending*, said, "That's a really good piece! It's austere!" When he said this, I think he meant that the piece does not stray from a commitment to formal ideas, does not try to entertain the audience, does not sell out. It is my wish to create music in which the sounds themselves seem to have their own life, without an aesthetic or style directing how they act in a work. Perhaps, like Tenney, I also feel a kinship to composers such as Bach and Schoenberg, to the relatively pure, numerical aspect of their expression. For it is through such experimentation that new sounds, not harnessed by an external ideology, fashion, or style, can be heard as pure explorations of the potential of sound as raw material, unaffected by human sentiment. To me, it is music such as this that seems most to be universal.

But if Tenney's artistic stance was one of austere focus on pure idea and pure sound, he was nonetheless possessed of great personal warmth, entering enthusiastically into direct social experience, celebrating life and sexuality. And he also maintained a close involvement with other art forms. In the 1960s he participated in the art action performances of his then partner, Carolee Schneemann, and from the 1950s on, he collaborated often with experimental film-maker Stan Brakhage. His compositions *Blue Suede* (an electronic deconstruction and reconstruction of Elvis Presley's famous version of the song "Blue Suede Shoes"), and his tributes to Scott Joplin, the American ragtime pianist-composer, and to Conlon Nancarrow, show the side of Tenney's personality that celebrated the danceable aspects of life. His joy in the human experience, his incessant and infectiously positive spirit, and his ability to clearly articulate both simple and complex ideas made Jim one of the most vibrant, informative, inspiring figures for so many musicians and composers over the past few decades.