

Reviews

[Editor's note: Selected reviews are posted on the Web at <http://www.computermusicjournal.org> (click on the Reviews tab). In some cases, they are either unpublished in the *Journal* itself or published in an abbreviated form in the *Journal*.]

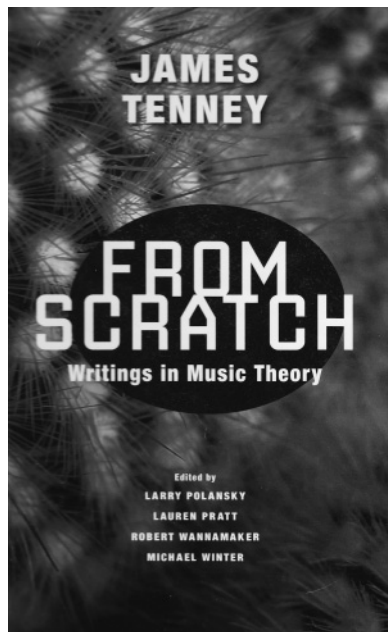
Publications

James Tenney: *From Scratch: Writings in Music Theory*

Hardcover, 2015, ISBN 978-0-252-09667-9, 504 pages, US\$ 80, edited by Larry Polansky, Lauren Pratt, Robert Wannamaker, Michael Winter; University of Illinois Press, 1325 South Oak Street, MC-566, Champaign, Illinois 61820-6903; www.press.uillinois.edu.

*Reviewed by Robert Hasegawa
Montreal, Quebec, Canada*

This volume brings together more than 400 pages of theoretical essays by American composer James Tenney (1934–2006), spanning his long and productive career. Tenney belongs to a vital lineage of 20th-century composer-theorists including Milton Babbitt and George Perle, and seminal figures such as Arnold Schoenberg. What makes Tenney distinct in this company—whose members are mostly associated with twelve-tone composition and its offshoots—is a continual fascination with the mechanisms of musical perception and a dedication to explaining music as experienced, not merely in terms of mathematical abstractions. A self-described “unregenerate phenomenologist” (p. 364), Tenney sought to ground both his



musical compositions and his discourse about music in the givens of human cognition, starting “from scratch” with the perception of various musical parameters, their role in creating a hierarchical grouping structure (starting with musical gestalts or “clangs”), and the psychoacoustics of tone combinations (in other words, “harmony,” construed in the broadest possible sense).

Tenney’s maturation as a composer took place during a time of enormous change and turmoil in 20th-century music and aesthetics. His early aesthetics were shaped by the music of Schoenberg, Anton von Webern, Edgard Varèse, Charles Ives, and Carl Ruggles. One can sense that his early works, such as *Seeds I–VI* (1956–1961), are negotiating a middle ground between European modernism and what Michael Broyles has dubbed the “maverick tradition” of American experimental music. As a student, he worked with composers including Ruggles and Harry Partch, as well as briefly pursuing studies in engineering. Tenney’s path was decisively

shaped by two formative encounters in the early 1960s: a period spent as a researcher at Bell Laboratories and his discovery of the music of John Cage. This period brought him into contact with a burgeoning performance art scene in New York City, including his partner Carolee Schneemann and members of the Fluxus movement such as Nam June Paik, Charlotte Moorman, and George Brecht.

Readers of *Computer Music Journal* will find Tenney’s involvement in the early years of computer music particularly interesting. This period is chronicled in chapter 3, “Computer Music Experiences, 1961–1964,” and several other short writings. Tenney began his residency at Bell Laboratories in 1961, working alongside figures such as Max Mathews, John Pierce, and Joan Miller. Tenney was among the first composers invited to work at Bell Labs (David Lewin had preceded him by a year). Soon this group of computer music pioneers would grow to include Gerald Strang, Jean-Claude Risset, and many others. Tenney came to Bell Labs to pursue projects in both research and composition. Many of the topics he explored remain active areas of investigation today: sound analysis and synthesis, independent control of musical parameters, stochastic techniques, and algorithmic composition. Tenney’s publications included “On the Physical Correlates of Timbre” (1965) and “An Experimental Investigation of Timbre—the Violin” (1966). Both explored the spectral structure and temporal modulation of natural sounds through Fourier analysis and resynthesis.

This focus on the timbral dimension in isolation reflects a parametric conceptualization of music, reflecting both the practicalities of computer programming and concomitant trends in European serial thought (inspired in no small part by electronic music techniques).

doi:10.1162/COMJ.r.00376

Individual parameters—frequency, amplitude, timbre, duration, etc.—were considered separately in terms of their contribution to an overall perceived form. Parameterization came to play an important role in virtually all of Tenney's music. Many of the postcard-sized scores of the *Postal Pieces* (1965–1971) explore a continuous evolution of just one musical parameter, for example, pitch in *Koan* for solo violin, or amplitude in *Swell Piece* or *Having Never Written a Note for Percussion*. The notion of parameters even informs Tenney's relationship to the music of earlier composers. His analyses of music by Schoenberg (chapter 1) and Ruggles (chapter 8) are based on the examination of particular parameters—rhythm, dynamics, and timbre for Schoenberg and melodic interval size for Ruggles—and how this principle defines a particular musical style.

Compositionally, the control of parameters could be subject to simple linear processes or to stochastic or chance techniques, well adapted to the rapid calculations of the computer. In "Computer Music Experiences" Tenney recounts the computer-aided creation of stochastic works for tape (*Analog #1: Noise Study*, *Four Stochastic Studies*, and *Dialogue*) and live instruments (*Stochastic String Quartet*, inspired by Lejaren Hiller's *ILLIAC Suite* from 1957). Tenney's interest in Cage was reflected in his use of *ergodic* forms—forms with a statistical homogeneity that "allow anything to happen" within a field of possibilities. Such forms meant a renunciation of the "guiding hand" of the composer, instead giving "free rein to the sounds themselves" (p. 121). Stochastic approaches and algorithmic composition would remain important throughout Tenney's life. Michael Winter and Rob Wannamaker have

described the design of compositions such as the Spectrum series or his last completed work, *Arbor Vitae* for string quartet, in analyses in a 2008 issue of the *Contemporary Music Review* (they are both coeditors of *From Scratch*).

The seeming abstraction of a parametric approach to composing music is grounded by Tenney's deep dedication to exploring the nature of musical perception and experience. In a 1978 interview, he described his music as "sound for the sake of perceptual insight." Tenney characterizes himself as a student of phenomenology as defined by Gestalt psychologist Kurt Koffka: the pursuit of "as naive and full a description of direct experience as possible" (p. 14). Inspired by the observations of Gestalt psychology, which sought to explain how we make sense of complex visual information by parsing it into manageable chunks through simple perceptual principles, Tenney searched for a musical analogy. In his seminal essay "Meta + Hodos" (from the Greek etymology of "method," from *meta* "after" and *hodos* "way"), Tenney formulates the idea of the *temporal gestalt*, a span of time "both internally cohesive and externally segregated from comparable time-spans immediately preceding and following it" (p. 201). Such cohesive spans can occur at various hierarchical levels—element, clang, and sequence—corresponding roughly to phonemes, words, and sentences. Roughly speaking, temporal gestalts are formed by disjunctions in various parameters. As in gestalt models of visual cognition, there are "a number of factors of cohesion and segregation, the most important of which are *proximity* and *similarity*" (p. 168).

"Meta + Hodos" had a complex publication history. Written at the University of Illinois at Urbana-Champaign while Tenney was still

a student of Kenneth Gaburo, copies circulated among composers and theorists before its 1964 publication by the Inter-American Institute for Musical Research of Tulane University, and its 1986 reissue by Frog Peak Music. Tenney continued to refine "Meta + Hodos" in "Form in Twentieth-Century Music" (1969–1970), "META Meta + Hodos" (1975), and "Hierarchical Temporal Gestalt Perception in Music" (1978, co-authored with Larry Polansky), all are included in this volume. Tenney's perception-based theory was very different from the pitch-class set approaches then dominating academic music theory, though no less rigorous, as seen in the computational model for melodic gestalt segmentation presented in the 1978 article. The phenomenological approach advocated by Tenney has since seen an enthusiastic resurgence in writings by the late Thomas Clifton (whose *Music as Heard* received a critical yet sympathetic review from Tenney), Judith Lochhead, David Lewin, and Steven Rings. Though Tenney himself did not pursue an experimental verification of his model with human subjects, his findings have significant implications for the psychology of hearing and could neatly complement existing areas of study such as Albert Bregman's auditory scene analysis.

While "Meta + Hodos" and its companion texts emphasized the way that 20th-century composition could draw on any sound to shape perceived musical form, Tenney's later theoretical writings return to the particular problems and resources of pitched sounds—broadly speaking, the discipline of harmony. Most important is the 1983 essay "John Cage and the Theory of Harmony" (chapter 12). The title's pairing is deliberately incongruous. As recounted in Cage's *Silence*, as a student at UCLA Arnold Schoenberg told him that he had

“no ear for harmony,” and there is little indication of a theory of pitch relationships in Cage’s writings or compositions. What Tenney hoped to bring from the teachings of Cage to the study of harmony was a concern for the “nature of sounds” (p. 288) and the way they are experienced in a “sound-space of musical perception” (p. 292). For Tenney, a Cagean approach to harmony would need to be (1) “*descriptive*—not pre- (or proscriptive)—and thus, *aesthetically neutral*,” (2) “culturally/stylistically *general*,” and (3) “*quantitative*” (pp. 281–282). Such a theory would be based on perceptual principles and applicable to music of all time periods and cultures, not just an “etiquette book” of conventional progressions from Western music history.

Two essential concepts inform Tenney’s theory of harmony: harmonic space and intonational tolerance. The key precursors of Tenney’s notion of harmonic space are Partch’s tonality diamond (an interwoven grid of purely tuned overtone and undertone chords) and Ben Johnston’s just-intonation lattices. Tenney had worked with Partch briefly while still a student at the University of Illinois (by all accounts a rather tense relationship) but only applied Partch’s just intonation concepts much later, drawn to the uniquely consonant properties of tones related by simple frequency ratios. Tenney’s harmonic space is a multidimensional set of points, arranged along axes corresponding to the prime integers. A step along the 2-axis corresponds to the interval of an octave (multiplying or dividing the frequency by 2), while a step on the 3-axis corresponds to a perfect twelfth (multiplying or dividing by 3). The addition of just thirds and sixths requires a 5-axis—and the further addition of 7- and 11-axes allows the expression of all of Partch’s microtonal sonorities. Harmonic dis-

tance in this space is calculated by a metric that reflects our intuition that intervals with simple frequency ratios (the 2/1 octave or 3/2 fifth) are smaller steps in harmonic space than complex intervals like Partch’s 7/6 septimal minor third or 11/8 undecimal triton.

Where the just intonation theories of Partch and Johnston demand uncompromising precision in tuning, Tenney’s adaptation proposes that our harmonic perception allows a degree of tolerance. He proposes that even mistuned versions of the referential just intervals “still carry *the same harmonic sense* as the accurately tuned interval”—in other words, both a just major third (3.86 semitones) and its approximation in equal temperament (4.00 semitones) are understood as representing the same frequency ratio 5/4. We “tend to interpret any given interval,” Tenney argues, as “representing’—or being a variant of—the *simplest interval within the tolerance range* around the interval actually heard” (pp. 378–379). This concession to the imprecision (or perhaps adaptability) of human hearing means that the potentially infinite fabric of frequency ratios found in just intonation theory collapses to a smaller number of simpler relationships.

In practice, Tenney’s music does not shy away from complex interval ratios. *Arbor Vitae* includes such distant relationships as 1331/1024 (4.54 semitones), but such intervals are usually presented in contexts that enhance their comprehensibility, either through a slow pace of development or the inclusion of intermediary harmonic steps. Tenney believes that the microtonal pitches made explicable by his theory are part of a “new music-historical era during which there will be a resumption of the evolutionary development of *harmony*, a development that had

reached an impasse in Western art music in about 1910 because the specifically *harmonic* resources of 12-tone equal temperament had been exhausted” (p. 395).

Tenney’s theoretical ideas are almost always conceived in connection to his own compositional work, and *From Scratch* includes a few chapters devoted to the explication of individual pieces. Tenney’s writings about his own works are rare—one might speculate that he preferred to address his theoretical writing towards universals rather than particulars—but are characteristically clear and precise. The longest article reprinted here, “About *Changes: Sixty-Four Studies for Six Harps*,” was published in *Perspectives of New Music*, the shorter essays (on *Bridge* and *Diapason*) were previously available only in concert program booklets and CD liner notes. “About *Changes*” describes in detail how Tenney planned the harmonic and formal design of sixty-four studies for six harps, each retuned a twelfth-tone away from its neighbor to allow an equal-tempered 72-note scale. (The late Ezra Sims explored a similar system in two articles published in this journal.) Tenney’s theory of intonational tolerance allows him to predict how these tempered pitches will imply a wide range of just harmonic intervals, grouped into “modes” that unfold according to strictly constrained stochastic processes. Like much of Tenney’s later music, *Changes* can be conceived of as “activity in harmonic space” (p. 380).

These essays on individual works are particularly welcome given the relative paucity of analytical writing on Tenney’s music. Larry Polansky’s “The Early Works of James Tenney,” published in 1983 in *Soundings* 13, remains indispensable for an overview of the works up to *Three Indigenous Songs* (1979). More recent articles by

Bob Gilmore, Michael Winter, Brian Belet, and Rob Wannamaker help to update the literature. Particularly interesting is Wannamaker's "The Intense Spectral Music of James Tenney," which explores the notion that as a "North American spectralist" Tenney independently explored ideas and concepts central to the work of L'itinéraire composers such as Gérard Grisey and Tristan Murail.

The appearance of these theoretical essays seems particularly timely given recent developments in new music, many of which make Tenney's work appear prescient. An emphasis on perception is at the heart of spectral and post-spectral approaches, founded on analogies between the cognition of complex sounds and the construction of musical harmonies and timbres. Microtonality is increasingly a central part of contemporary composition, and Tenney's theories play an important role in the music of composers such as Georg Friedrich Haas (who dedicated two works to Tenney's memory in 2006 and 2007). A continually expanding emphasis on new timbral resources makes the need for a perception-based alternative to traditional score-based analysis more urgent than ever before. Tenney's temporal gestalt theory could be a powerful tool in the exploration of what Aaron Helgeson has called "phenomenological music," which includes the works of Salvatore Sciarrino, Helmut Lachenmann, Pierluigi Billone, Chaya Czernowin, and Rebecca Saunders.

Writings by Tenney have not always been easy to find. Among the 22 essays printed here, 6 have never been published, and others have appeared only in lesser known journals or German-language versions. (The volume also includes several articles from prominent journals such as *Journal of Music Theory* and *Perspectives of New Music*.) To take just

one example, "The Several Dimensions of Pitch," an essential text for the understanding of Tenney's later harmonic theories, was previously published only in the proceedings of a 1992 symposium in The Hague. The editors of this volume, all former students and collaborators, worked closely with Tenney to update and clarify this and other essays.

Given the tumultuous decades of Tenney's artistic career, the essays in this collection (dating from 1955 to 2006) show a remarkably consistent set of preoccupations. Tenney is constantly in search of concepts that reflect and illuminate the complexities of musical experience, and displays an intense curiosity about the very fundamentals of our perception. Tenney's inimitable voice as an author and thinker emerges clearly through all the writings. Even the most technical writings are free of jargon and posturing, and combine a notable rigor, inspired in part by his engagement with computer technology, with boundless enthusiasm, a marveling at the power of music, and a desire to share the richness of musical experience. The intellectual and creative path chronicled here is inspiring, particularly as Tenney's questions about the experience of music-making remain deeply relevant today.

Recordings

David Rothenberg and Korhan Erel: Berlin Bülbül

Compact disc, 2015, Gruenrekorder, Gruen 159, available from Gruenrekorder, Darmstädter Str. 29, 63456 Hanau/M., Germany;

doi:10.1162/COMJ.r.00377

telephone: +49 176-313-555-22; www.gruenrekorder.de/.

*Reviewed by Seth Rozanoff
Glasgow, Scotland, UK*

Berlin Bülbül is a set of twelve tracks demonstrating a robust musical interaction between David Rothenberg (clarinet, bass clarinet, electronic effects) and Korhan Erel (iPad and controllers). The duo effectively mixes environmental source material into their dialogue, such as nightingales recorded in various Berlin parks. Bülbül means nightingale in Turkish. Rothenberg engages with the bird source material as if it were another musician. As he puts it, with regard to the duo's goals: "we try to make interspecies, intercultural music that neither of us could make on our own." He refers to the process of encountering the nightingales, and how their sounds influenced the electronics and clarinet duet back in the studio. Rothenberg describes their compositional approach as one that involves "careful listening, editing, and omission," where the studio preparation and processing of the clarinet and nightingale source sounds are vital components of the overall collaboration. With regards to the inclusion of electronics, Erel demonstrates a personal approach to the management of his resources. He has clearly practiced the technology he uses, revealing a nonidiomatic technique. His sound design choices never result in overly noisy and uninteresting music. Rather, these choices emerge from a sense of patience that largely determines the creation and augmentation of material.

It is worth noting the technology that both players use in performance. In the case of the clarinet, Spektral Delay by Native Instruments is applied, as well as The Mouth (vocoder). Rothenberg uses just enough of these