Appendix III: Glossary of Selected Terms

(Roman numerals following each term are chapters in which the term is especially relevant.)

aggregate (I,II,III,XVI,XVII)
The term used by Tenney, Cage and others to signify combinations of sounds which are used in composition, or are perceived as 'sonic primitives' . For example, the prepared piano sounds of Cage's Sonatas and Interludes or the 'palate' of pitch combinations in the String Quartet. Tenney's concern with aggregates is manifested in Meta/Hodos and in his harmony research, notably "John Cage and the Theory of Harmony."

beats (IV,VII)
(see also difference tones) Low frequency 'pulsations' heard as a resultant of two or more different frequencies. Beats are simply low frequency first order difference tones (see below, and Helmholtz/Ellis and/or Partch) caused by pitches that differ by less than about 16-20 cycles per second.

cents (IV,VII,VIII,IX,X,XIII,XVII)
A logarithmic unit of pitch , one cent is equal to 1/1200 of an octave. Cents are convenient units for the comparison of different intonations. The 12-tone tempered scale is simply the even hundred-multiples (100,200,...). See Helmholtz/Ellis for a more precise explanation on the calculation of cents from ratios and vice versa (especially Appendix XX); Partch for a useful list of common ratios and their cents equivalents, (Partch: Appendix 1); and John Chalmers' excellent "Conversion Tables for 1200 tone temperament", available from Chalmers but regrettably unpublished, for an exhaustive source of cents values of practically any interval.

clang (Intro, I,III,VIII,XVI)
(from Meta/Hodos "Glossary") "A sound or sound-configuration which is perceived as a primary musical unit or aural Gestalt. The clang-concept constitutes the nucleus and core--in fact, the essential "heart and soul" of the entire "conceptual framework" proposed in this paper."
I also use this term to describe a slightly different but related compositional technique which Tenney often uses (see Introduction).

difference function (XVI)
An ordered set of values derived from another set (e.g. parametric profile) in which the values of the former are point by point differences of the latter. The particular form of the difference function is dependent on the type of metric used (see below), but a simple one might be the set of absolute value integer distances of a melody, also expressed as integers.

ergodicity (Intro,III,IV,VI,XVI)
A particular statistical condition in which certain parameters remain static with respect to certain perceptual measures. In mathematics, ergodic functions have a more complex formulation, but Tenney uses the term to describe musical forms in which certain parametric statistics will not change appreciably over time; thus a kind of structure is created in which the order of events is not particularly significant in any conventional sense.

harmonic series, intonations (VIII,IX,X,XI,XIII)
The following chart can be used as a reference for the 'natural' intonations of the first eight odd harmonics. All values are rounded to the nearest tenth of a cent. All harmonic series ratios are reduced to within one octave.

Harmonic #	Cents	Deviation from nearest tempered interval
1	---	---
3	702	+2 (perfect fifth)
5	386.3	-13.7 (major third)
7	968.8	-31.2 (minor seventh)
9	203.9	+3.9 (major second)
11	551.3	-48.7 (tritone)
13	840.5	+40.5 (minor sixth)
17	105	+5 (minor second)

Hierarchical gestalt formation (III,XVI)
A system of 'nested' TG's on several hierarchical levels. This is analagous in some sense to the ways that notes are traditionally grouped into phrases, phrases into sequences, sequences into sections, etc.; although Tenney's terminology and formation criteria differ significantly from conventional formal analysis.

metric (XVI)
A function which assigns a distance value between any two points. A metric must have four properties:
1) distances must always be positive.
2) if the distances are equal, the points are equal (and vice versa).
3) the distance between point x and point y is the same between point y and point x (symmetry).
4) for three points x,y,z; the distance between x and z must be less than or equal to the distance between x and y plus the distance between y and z (this is called the 'triangle' inequality).

Defining a given distance function (metric) on a given set of points defines a particular metric space. In other words, the way distances are perceived determines rather uniquely the perceptual and topological characteristics of a given space.

morphology (XVI)
The study or characteristic of shape (as defined in MMH.) Morphology is, in other words, a consideration of the dynamics of ordered sets of values, as opposed to statistical (state) measures.

octatonic scale (octaphonic mode) (VIII,X,XIII)
A scale composed of alternating whole steps and half-steps: in "C": C-C#-E^{b}-E-F#-G-A-A#-C. This scale can be closely related to the prime harmonics: 1-17-19-5-11-3-13-7; and is thus kind of a primitive harmonic system. It contains two major chords a tritone apart (C-E-G/F#-A#-C#), and is sometimes called the 'Petrouchka chord' in this regard. The scale is sometimes thought of by jazz players as the alternate 'mode' of the diminished scale (which reverses the whole step - half step order), and also sometimes called the altered dominant.

parametric mean (III,XVI)
The mean (usually weighted by component durations) of a given set of parametric values. In Tenney's theories, these means determine the state of a next higher level TG.

parametric range (III,XVI)
The total variation of a given parameter in a TG.

shape and state (XVI)
(see Chapter XVI)

'square root method' (XIII)
A compositional technique used by Cage in his First Construction, String Quartet, and other works, in which the durations of larger sections are related to smaller sections in a simple, recursive manner. For example, a piece might consist of 10 large sections, each composed of 10 sub-sections, each of those composed of ten measures of ten beats each. Tenney invokes this technique in the String Trio (Harmonium #5).

superparticular ratio (XI)
Any ratio where the numerator is one more than the denominator.

stochastic process (III)
A process by which random distributions are subjected to 'shaping' or 'coloring' to provide a large scale determinate form with indeterminate small-scale structure. Once again, in mathematics, the idea of stochastic process is more complex, but Tenney, Xenakis, Hiller and others have used it frequently to describe many of their own compositional procedures.

temporal gestalt (III,XVI)
A generalized term for what Tenney defines above in clang. A TG is not level specific - elements, clangs, sequences, are all

TG's, though at different hierarchical levels. TG's are formed by the processes of cohesion and segregation which Tenney discusses in MH, MMH and HGPM.

temporal density (III,XVI)
(see Chapter XVI)