

## A.2 Analytical Techniques: A Preliminary Exploration

An analysis is words about music<sup>1</sup> [not musicians (=musicology) or instruments (=organology) or manuscripts (=paleography) or musical cultures (=ethnomusicology) or the physics of music (acoustics) etc.].

Broadly, music falls into two categories: musics of progression (teleological<sup>2</sup> musics) and musics emphasizing the individual moment (anti-teleological musics). **Teleological** musics include most Western classical music, most jazz, and most popular music. These types of music evoke words such as trajectory, progression, growth, line, goal, climax, and development. When analyzing these musics, a three-question approach is often useful. First, what is the music like at the start of the piece or section? Second, what is the music like at the end of the piece or section? Third, how does the music progress from its initial state to its final state over the course of the piece or section? Or, in other words, how does the music work?

**Anti-teleological musics** include many non-Western musics (Indian ragas, Javanese gamelan, African drumming, etc.), as well as certain musics influenced by non-Western philosophies. These include classic Minimalism (Terry Riley etc.), Free Jazz (Ornette Coleman, late John Coltrane, etc.), avante garde jazz (Charlie Mingus, Cecil Taylor, Art Ensemble of Chicago, etc.), moment forms (Stockhausen), etc. These types of music evoke terms such as meditation, free exploration, atmosphere, environment, and circularity. When analyzing these musics, a descriptive approach might be helpful. How do the musicians create atmosphere? What technical features play into the process of the music? How is energy maintained? Are there subtle changes to the musical environment over the course of the piece? How do these changes highlight different aspects of the core materials used in the process?

**While an exhaustive list of analytical techniques would be impossible to complete, the techniques listed below provide a number of good options when beginning an analysis of a piece of music. I have organized the list based on musical parameters, although some techniques span several categories. Cross-disciplinary analysis techniques such as aesthetics, psycho-acoustics, and cultural studies have been omitted in the interest of brevity.**

### Summary outline:

Unit IA. Harmonic analysis: Roman numeral analysis, figured bass, lead sheet symbols, harmonic key/analysis

Unit IB. Melodic analysis: Form, early music, scales and modes

Unit IC. Pitch-based structural analysis: Schenkerian theory

Unit ID. Pitch-based segmentation: set theory and serial theory

Unit II. Rhythm and musical time: hypermeter, poetic meters, golden mean, rhythmic modes, rhythmic motives

Unit IIIA. Timbre: descriptive or graphical analysis of timbre, Fourier analysis, analysis of phonemes in vocal music

Unit IIIB. Dynamics and texture: loudness, textural density, relative “density” of harmonies

Unit IV. Text/programmatic analysis: text structure, program music, “hidden” programs

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<sup>1</sup> Milton Babbitt seems to have come up with this definition first in his book of the same name.

<sup>2</sup> This term was introduced by Leonard Meyer in *Music, the Arts, and Ideas* (Chicago: University of Chicago Press, 1967, rep. 1994), p. 72. Although I dislike “anti-teleological” because it expresses one ideal in terms of the negation of another, the alternative “nonlinear” seems little better since it is also based on negation.

## A.2 Analytical Techniques: A Preliminary Exploration, cont.

### Full outline:

- I. Pitch and frequency
  - A. Harmonic Analysis
    1. Roman numeral analysis / key analysis
    2. Figured bass and related approaches
    3. Lead sheet / pop symbol analysis
    4. Tables indicating harmonic/key relationships in a piece. Note that there is some overlap between this type of analysis and formal analysis.
  - B. Melodic analysis: Although there is some overlap between this category and motivic analysis, melodic analysis focuses on melodic change as an organizer of musical time. Because the majority of the repertoire is tonal, and because tonal music articulates form primarily via melody, I have placed formal analysis into this grouping.
    1. Form: Most of the common forms depend on departure and return of both melody and key. Formal analysis may take the form of narrative description, tables and figures, or some combination of these.
    2. Early music analysis techniques: These are primarily related to melodic analysis.
      - a) Isorhythmic analysis, esp. labeling isorhythmic structures in early music (color and talea)
      - b) Cantus firmus analysis: labeling and/or describing the composer's use of the cantus firmus
      - c) Hexachordal analysis: describing hexachords and their mutations over the course of a composition.
    3. Descriptive analysis of tessitura(s) or melodic contour; Is the music high or low? Does it change?
    4. Scale/mode analysis: Which scales or modes are in use? Do they change?
  - C. Pitch-based structural approaches: These approaches typically assume a hierarchy of structural levels for pitch. They range from surface observations about relationships between chord tones and non-chord tones to full Schenkerian graphs indicating "hidden" linear connections among sections hundreds of measures apart. A few theorists prominent in this field are Heinrich Schenker, Ernst Oster, William Rothstein, Carl Schachter, Alan Cadwallader, and Timothy Jackson, among others.
    1. Linear or Schenkerian analysis
    2. Pitch-based motivic analysis, especially as it relates to various structural levels of the piece
  - D. Pitch-based segmentation approaches: These approaches typically examine groups of pitches from different moments in the composition. By comparing and contrasting interval and pitch content at these key moments, the theorist hopes to understand the composer's control of pitch materials in the piece. Prominent theorists include Alan Forte, John Rahn, and Joseph Straus, among others, as well as the theorist/composers Arnold Schoenberg, Anton Webern, Alban Berg, Milton Babbitt, Charles Wuorinen, Pierre Boulez, and Karlheinz Stockhausen, among others.
    1. Set theory
    2. Serial theory
      - a) Classic serialism / dodecaphonic analysis: discussion of row forms, transformations, derivation, combinatoriality, invariance, properties of the row, etc.
      - b) Serialism using subsets of the aggregate (i.e. < 12 pitch classes) but otherwise similar to classic serialism

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### II. Rhythm and musical time

- A. Hypermeter analysis: Hypermeter is the idea that entire measures can be relatively accented or unaccented metrically in relation to other measures. It is closely related to poetic meter analysis methods. See William Rothstein, [The Rhythmic Structure of Music](#) among others.
- B. Accentuation pattern analysis related to concepts of poetic meter: Cooper and Meyer, [The Rhythmic Structure of Music](#)
- C. Golden ratio / golden mean / golden section analysis: The golden ratio is 0.61803 of the way through a piece or section. It is the moment when  $x/(x+y) = y/x$ , where  $x$  is the first 0.61803 of the piece, and  $y$  is the remainder. This ratio has been considered pleasing since the time of the ancient Greeks, and comes up occasionally as an explanation for musical pacing and sectional divisions.
- D. Rhythmic modes: Analysis of rhythmic modes in early music, from de Vitry's [Ars Nova](#) (1325).
- E. Rhythmic motives: Analysis via description or tables examining recurring rhythmic motives.
- F. Metric analysis: Examining the function of meter in the piece, especially the way the composer frustrates expected accent patterns.

### III. Acoustic parameters other than pitch and rhythm

#### A. Timbre

- 1. Descriptive analysis or tables tracing changes in orchestration/instrumentation
- 2. **Fourier Analysis**: Attempts to take a periodic waveform (like a musical tone) and reduce it to a sum of sine waves, each with its own respective frequency, loudness, and phase shift. This type of analysis requires a computer and appropriate software.
- 3. Graphical analysis of timbres based on constituent parameters and/or relating instrumental timbres to phonemes: Wayne Slawson, [Sound Color](#).
- 4. Use of phonemes in vocal music; also, consideration of vowel sounds as they affect timbre, especially in relation to the text, range, or dynamics of the music.

#### B. Dynamics / loudness:

- 1. Descriptive analysis and/or as tables
- 2. Measurement of decibels (dB) as raw acoustic data

#### C. Texture

- 1. Descriptive and/or as tables
- 2. Relative "density" of harmonies
- 3. Graphic representation of textural streams

### IV. Text / programmatic analysis

- A. Opera or ballet plot summaries, especially when related to the music
- B. Discussion of text structure for works with lyrics, esp. in relation to other parameters
- C. Discussion of program for program music
- D. Analysis of "hidden" programs: Relating other types of analysis to the historical data to support music as an expression of extra-musical events in the composer's life. This type of analysis can range from fantastic to plausible to desperate. The unscrupulous theorist may find herself or himself slipping into musicology in this category.