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## Examining Historical Precedents for Directional Motion in Ligeti's Mid-Century Works

### ABSTRACT

#### Background

The analysis of directionality and continuity in modern works is a problem of well-known difficulty. Although theorists have proposed analytical approaches to particular works, or set out rules prohibiting tonal voice-leading in them, there has not been a study of historical types of directional motion and how they expanded in the 20<sup>th</sup> century, with analytical applications to particular composers' repertory. This presentation will include musical analyses of two works by Ligeti, charts and tables of historic principles, and sound examples.

It has been said by Straus, Kleppinger, et al. that centric directionality is not possible in post-tonal musical works. I propose that the problem is not one of examining techniques in only one particular work but of recognizing ways of audiating in each historical period that engendered accumulation of tone systems over time, a factor which is not addressed by these writers. This paper aims to illustrate actions of memory and continuity which allow the building of directionality in memory, actions which continued to be used in the modern era, in particular suggesting how pitch cycles can be heard as an expansion beyond the tonal system.

#### Aims and repertoire studied

Directional motion in Ligeti's mid-century period is audible when its use of cyclic groupings is heard to extend logically and musically from previous systems, while establishing new tone-group relationships and centric gravitation. After discussing the historic underpinnings of these systems, I will present detailed analyses of new directional, hierarchic and structural features in Ligeti's *Lux Aeterna* and *Lontano*. Sound examples will illustrate a centric system of cycles based on the ability of musical memory to simultaneously audiate a starting group of pitches and a cyclic expansion of it.

#### Methods

The analytical method will expand on tonal linear-analysis models, with the proviso that it shows a new kind of pitch-cyclic directional motion outside of tonality, and that multiple composers have begun to use this motion in widely differing genres.

This methodology begins with certain assumed principles:

- In order to perceive the motion of melodic tones, a listener must remember them, audiating with mental simultaneity, comparing the distances between and durations of the tones. This comparison holds equally true for observing the motion between successive chords or keys.

- The memory of simultaneous notes and groups is aided by the standardization of the scale, which was developed in conjunction with overtones, which tune up pleasantly, fostering a centric organization, as the partials elaborate the sine tone.

- Centricity aids simultaneous memory because scale notes and chords relate to a starting point by adding, and by directionally returning to the start through falling away. All of the elements of the motion must be held in memory at once for directionality to be perceived.

- This use of memory results in increasing numbers of note groupings perceived at once, first as melody, then chords, then successions of directional chords, then keys. This accumulation has been present throughout musical history, and it would be problematic to presume that the foundations of musical hearing have changed.

- The motion from lesser to greater complexity (then falling away) has always been a basis for expressive weight throughout musical history. Complexity can include dissonance or newness or difference, which are mentally intense comparisons to what came before.

- After the saturation of tonality in the 19<sup>th</sup> century, composers began to hear comparisons of groupings larger than triads (e.g. scale collections) to pitch cycles, which, in the form of sequences, had already been established as a way of breaking out of tonality and returning to it. The notion of transposition of a chord or key was thus expanded into, for example, the explosion of a group of semitones into a cycle of fifths, a multiplicative mapping.

- The aural advantage of the cycle is its easy recognizability, while its pattern retains a resonance with past tonal motions, for example a sense of cadencing in the case of V/V/V. Therefore listeners can associate a cluster of fifths moving to semitones with directional cadencing motion. Such a group of fifths might strongly invoke the affect of dominant finality, while avoiding the too-familiar single V-I.

- Since hearing cyclic motion relies on the mental comparison of a standardized starting point (a scale, cluster of semitones, or unison) with a cyclic pattern, the concept of the exploding motion is reversible, hence centric and directional.

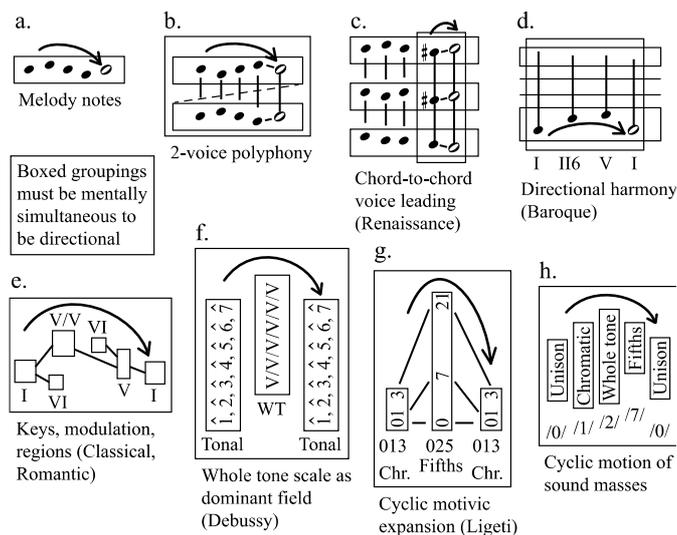
- The possibility of motion to all interval cycles creates a *system* of motions arising from a starting point, forming an expansion out of the tonal system. Although not tonal, motion between various cycles could be heard directionally, and could include voice leading.

- The clearly audible interval of the fifth has always been the first choice for experimentation with new compositional simultaneities (organum, polyphony, the V-I cadence, modulation to the dominant), and such devices were first used for cadences because of their stability and finality. Thus the association of collapsing fifths with cadencing is long-standing.

A falling ninth or major second at the end of a work can successfully represent this (Schoenberg Op. 19/6).

- A chain of fifths within easy vocal range (alternating up and down) generates a whole-tone scale, in effect a series of V/V steps. Composers such as Debussy were able to suggest cadential resolution with motion from a whole-tone collection back to the tonal scale. This could even be used formally as a kind of modulation to a whole-tone field and back to a tonal theme area (see *Pour le Piano*, movement I).

- Motion between cycles proceeded without tonality later in the century. Figure 1 summarizes this entire development.



**Fig. 1. Mental simultaneity obtains directionality, centricity.**

Proceeding from these principles, this natural development suggests methods for the analysis of audible directional motion between cyclic collections. Such motion can be local or long-range, and composers can clarify with parameters of instrumentation, texture, motive, register, etc., as in the past.

To demonstrate this, I analyze in detail Ligeti's *Lux Aeterna* and *Lontano*, of which only a large-scale framework of the first can be shown here (see Ex. 1).

The texture of *Lux Aeterna* is built up of gradually shifting sound masses of small motives, especially [013]. The few sudden articulations are significant events of motion. Stufen-like symbols, /0/ (chromatic) and /7/ (fifths) are used to indicate cyclic properties, of both local collections and large-scale sound masses. The large motion from /0/ to /7/ is a clear opening gesture of motivic expansion of [013] to [025] (after m. 37), where the texture changes to mostly [025] and whole-tone sounds. [025] closes down again in m. 90, to a minor triad and chromatic trichords, and the motivic [025] in the sopranos in m. 94 closes the motive, leading to a cluster of

fifths after m. 100 which collapses to a cadential major second. The overall motion is /0/-/7/, /0/-/7/-/0/. The shape of the registers depicts an opening and closing vision of heavenly light.

Further concepts are presumed by this approach:

- Hearing cyclic motion directionally is aided by ear training (including singing of cycles). As an accumulation of simultaneities building on the tonal system, ear training mirrors the historical development of systems, first through melody, then counterpoint and harmony, then key relations, then learning to compare tone groupings larger than a chord, such as pcssets, scale collections, and cycles. Listeners can learn to grasp anchoring notes of cycles and linear melodic motion in an atonal context.

- Perceiving motion in modern works must be aided by repetitious listening, due to the complexity involved.

## Implications

The results of this study will suggest analytical applications for motion in many types of 20<sup>th</sup>-century work, and directions for compositional experimentation going forward. As pitch cycles have appeared in works from the era of Debussy to atonal and neo-tonal, in high-art and popular genres, composers appear to be picking up on a widespread aural phenomenon. Further analysis might reveal not only organizing principles in these works but directional expressive emphasis.

The reader is referred to a more extensive treatment of this topic in a forthcoming monograph that will include analyses of works from various historical periods.

## Keywords

Music analysis praxis and definitions, music analysis and listening approaches, theories of tonality, musical modelling, contemporary music, musical perception, analytical theory, advanced tonality and post-tonal music.

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