

New Modality: Sonic Magnification

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There have been many attempts to rationalise the potentially diverse nature of electroacoustic music. What has often been used to define the music has been concerned with the medium (electronic) or media (tape, computer) and the type or range of source material. These preoccupations have acted as a smokescreen, obscuring and hindering aesthetic discourse. With the huge expansion and development of electronic music it has been difficult to stand back and objectively observe the current state of affairs. This paper takes an alternative view of the evolution of acousmatic music and the result of Schaefferian and post-Schaefferian theories.

Throughout history the term mode and modality have had varying and often conflicting definitions. What essentially defines the concept of modality is the repetition of patterns. These may be a group of pitches, resonances (the recurrence of a particular frequency) or rhythmic motives that are organised hierarchically. Over the last fifty years composers working in the field of acousmatic music have gravitated towards modal composition. An explanation for this gravitation is offered through the idea of sonic magnification: the fragmentation of sound events and their augmentation through compositional techniques. As well as discussing the term modal in the context of acousmatic music, other contributing stylistic factors are considered. These include spectral focus, sound objects as modes, duration and pitch perception and the use of noise and non-pitched material. Consequently, the latter part of the twentieth century has not only produced a new form of music, being electronic, but a completely new style of modal composition.

A fundamental problem facing an acousmatic composer is how to extend the duration of a sound. 'Sound events' and 'sound objects' are in themselves self-contained units with their own internal timbral relationship. Michel Chion defines a sound object as: “ ... a perceived sound unity, whose intrinsic qualities, its colour, its dimensions, are considered independently of any signification it might convey”.¹ Different methods and approaches have been adopted to assist the integration of such sounds into a compositional language: for example, typomorphology and spectromorphology. As Smalley states, spectromorphology is primarily concerned with a music that focuses on timbre rather

¹ Michel Chion, *La Musique Electroacoustique*, col. Que sais-je (P.U.F., Paris, 1982), p. 55.

than the note.² However, historically the concept of the note provided a core building

Sonic magnification invariably leads, not only to expanding the duration of a sound object or event, but also to the creation of long drawn-out, or 'static' pitches. There would seem a critical point in tonal music whereby certain durations of pitch undermine the concept of keys and their progressions. It is not just the note or pitch that is heard, but the progression or transition from one note to another, the sequence of pitches. The longer a listener dwells on one particular pitch or groups of pitches, the more difficult it is to retain the concept of a sequence: the listener is taken from one discrete pitch centre to another.

The fundamental is also at the heart of defining a key or particular tonality; and it is the lower frequency material in an acousmatic composition that draws the listener into the perception of a pitch centre.

The term modality has been avoided up to this point, and for good reason. It has been widely used throughout musical history and has had numerous applications. The term mode derives from the Latin *modus*: measure. An early use of the term defined the relationship between the note values *longa* and *brevis*. In modern times, mode has become defined as a particular scale, a generalised tune, or a combination of the two inherent in a specific music culture. Winnington-Ingram in *Mode in Ancient Greek Music* writes:

Mode is essentially a question of the internal relationships of notes within a scale, especially of the predominance of one of them over the others as a tonic, its predominance being established in any or all of a number of ways: e.g., frequency recurrence, its appearance in a prominent position as the first note or the last, the delaying of its expected occurrence by some kind of embellishment.⁸

This definition of mode, the predominance of a particular pitch, would seem pertinent to the issues already discussed. Perhaps it is foolish to try and pin one particular meaning on the term and explore its relationship to acousmatic music. What is more pertinent is the ubiquitous use of the term, and its use as a method of classification.

As already discussed a sound object can be viewed as a discrete sonic unit. Such an object can comprise of a very complex hierarchy of timbres. If a sound is approached spectromorphologically or is 'magnified', then the relationships between the timbral

harmonic partials that create a form of modality. There would also seem no reason why the term ‘mode’ could not be used to define non-pitched material, noise. If a noise source is stretched, or transposed downward for example, then the listener will be able to more clearly detect pitched elements. A noise source thus moves towards pitch through sonic magnification.

The first movement of Denis Smalley’s *Névé* illustrates modality. A frequency analysis of the composition reveals a clear fundamental of circa 55 Hz (A). This pitch is also represented in octaves throughout the lower register. The duration of *Névé* is 4:41, of which at least three quarters of the composition (3:30) revolves around a fundamental of A. Other frequency which dominate, particularly in the section from 1:53 – 3:03, are 520 Hz and 150 Hz (C and E flat). To summarise, a mode seems to exist that comprises of the pitches A, C and E flat. The interplay throughout the composition between the fundamental A and the tri-tone, E flat, is undoubtedly a key feature of the work. Not only is the pitch A prominent throughout, but it also adopts a structural role. The composition begins with a fundamental of A, develops through the pitches of C and E flat and resolves back to the fundamental. The long drawn-out pitches and textures suggest that the source material has been ‘magnified’. Very faint traces of artefacts produced by aliasing also hint at the use of phase vocoding and time-stretching techniques. Timbrally the composition is characterised by ‘breathy’ transients, a detail also exaggerated by sonic magnification.

As Smalley remarked that composing with and ‘within’ timbre can only be realised in acousmatic composition, it is not surprising that musical genres that have a timbral focus gravitate towards modality. Indian classical music, the gamelan, and modal jazz are just three examples. Acousmatic composition is not about scales or necessarily pitch sets, but is tied to the idea of the sound object as a mode, with its subtle timbral hierarchies, resonances and rhythmic motifs. This paper is concerned with pitch, its perception, duration and frequency of occurrence; and techniques in acousmatic composition that have driven a compositional style towards a new form of modality.