

A Comprehensive Approach in Music and Audio Analysis: Similarities in Helmut Lachenmann's Music Compositions

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The recent paradigms related to the History of Modern Western Music may stratify an evolutionary path on the use of noise-like sound on acoustic music compositions. It can be traced primarily from the Italian futurist Luigi Russolo, the French- Italian composer Edgard Varèse, the American composer John Cage and particularly with the music compositions of Helmut Lachenmann. The German composer is rightly associated with the concept of 'instrumental musique concrète', a notion and a set of techniques that regard sound not as an abstract vehicle for musical ideas in the traditional sense of motivic development, but as the by-product of physical work, of the tension and release of human effort.

The original approach of the 'musique concrète', as developed by Pierre Schaeffer and Pierre Henry, extracts its compositional materials from the noises and sounds of daily life. In the following, the materials were recorded and manipulated by collage. Lachenmann tries to apply this procedure not with prerecorded sounds, but with the instrumental music potentialities.

From a chronological point of view, the Lachenmann's works can expose a natural maturing in aesthetic, philosophical and musical positions. Contemporary Western Music can diverge from repetitious patterns both for formal structure or compositional materials, 'both for formal structure, compositional materials, and acoustic similarities. This can be highlighted by analysis based on low-level acoustic features, which gives objective evidence towards the existence of sound correspondences within a piece.

The objective of the research is to stress and to pinpoint the most substantial aspects of the music of Lachenmann for large ensembles from a myriad of sound constructions, spectral features and aesthetical and compositional procedures extracted from his early works for solo instruments. In our analytical process, we calculated statistics (mean, variance and skewness) from low-level, framewise acoustic features estimated throughout recordings. It could be observed that semantically coherent excerpts were related to features that could be organized according to simple rules. This indicates that these features may be used both as objective evidence of the similarities between two excerpts, but also that they may be used to automatically extrapolate the sound perception, enhancing the analyst's capability of finding similar musical excerpts.