

Interactive Computer Simulation for Kinesthetic Learning to Perceive Unconventional Emergent Form-bearing Qualities in Music by Crawford Seeger, Carter, Ligeti, and Others

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ABSTRACT

Embracing the notion that metaphors influence reasoning about music, this study explores a computational-phenomenological approach to perception of musical form driven by a dynamic metaphor. Specifically, rather than static metaphors (structure, architecture, design, boundary, section) instead, dynamic ones are emphasized (flow, process, growth, progression) as more appropriate for modeling musical form in some circumstances. Such models are called *dynamic form*. A pedagogical program for enhancing the perception of dynamic form is pursued, by exploiting embodied cognition through custom built simulation technology.

Adopting an interdisciplinary approach, the presentation shows some computational models of qualities that convey such dynamic form in unconventional repertoire. Since such models are quantitative, it is plausible that, with appropriate technology, listeners who do not spontaneously attend to these could learn to do so, and then subsequently demonstrate perception and cognition of such form-bearing flux. Through simulation algorithms, the paper offers Max/MSP patches and iPhone apps that enable real-time user manipulation of the intensity of such qualities, by moving sliders with a mouse or finger or by tilting the angle of an iPhone. Such hands-on control is intended to kinesthetically cultivate sharper perception, cognition, attention, and interest of listeners confronting unconventional music. The presentation also offers computer animations of some theorized unconventional emergent qualities, which indeed constitute vessels of musical form.