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Babbitt's Beguiling Surfaces, Improvised Inside

ABSTRACT

Background

Musicologists such as Glog, Taruskin, and Chau characterize serialism as deterministic and coldly 'objective'. Yet Milton Babbitt's serial music often sounds spontaneous, quirky, and charmingly oddball. Furthermore Dubiel's, Mead's, and others' technical accounts of Babbitt's serial compositional practice show that his precompositional structures only predetermine his surfaces in a relatively limited sense. This has been overlooked because it is not the main emphasis of, and is not demonstrated vividly enough by Dubiel, Mead, and others, who instead emphasize the internal coherence of Babbitt's compositions.

Aims and Repertoire Studied

The purpose of this paper is to reorient our thinking on Babbitt's music away from the emphasis on predetermined structures and toward an alternative conception that comports with its quirky qualities. This involves a consideration of mathematical properties of Babbitt's precompositional structures and an examination of excerpts from his *Composition for Four Instruments* (1948), *Semi-Simple Variations* (1956), and *Whirled Series* (1987).

Methods

The method of inquiry involves examining Babbitt's compositional system and his implementation of this system for composing his works, and considers these in the context of mathematical modelling and the recent discourse on music improvisation.

The discourse of historical musicologists suggests they assume Babbitt's precompositional structures are deterministic in a fashion like Boulez's *Structures Ia*, that is, a pitch-time realization of a totally ordered structure. The misconception is highly significant. Unlike Boulez's totally deterministic *Structures Ia*, Babbitt's approach actually is not 'total' ordering but *partial ordering*. (Babbitt's pitch-class arrays are partial orderings.) Total ordering and partial ordering is not a slight difference. Rather it's like \$ 100,000 cash payment vs. an upcoming lottery ticket for a \$ 100,000 jackpot. Yes, it's that kind of difference. They both mention \$ 100,000 — but it's foolish to confuse these.

The numbering of actual (linear) orderings permitted by a particular partially ordered set (*poset*), has been called its *linear indeterminacy* (Lewin 1976). By extending the work of Starr and Morris (1978), this *linear indeterminacy* (freedom or flexibility of ordering) can be computed factorial of the number of pcs involved divided by the product of factorials of all the lyne-lengths involved: $N! / (n_1! \times n_2! \times \dots \times n_i!)$.

Thus we witness that the flexibility of ordering enabled by these *posets* is sometimes staggeringly great, a flexibility that is

hundreds of thousands of possibilities. For instance the *poset* that begins Babbitt's *Composition for Four Instruments* (an aggregate of four lynes each with three pcs) has 69,600 orderings, of which the ordering he chose is just one of those possibilities. The pitches of this structure could easily have been ordered completely differently — for instance to quote a popular song, such as Gershwin's *I've Got Rhythm* — without violating the structure's partial ordering rules, thus violating the integrity of Babbitt's system.

Given the amount of choice that Babbitt's precompositional structures permit, his act of producing a surface arrangement of pcs from this structure can be compared to 'improvisation', in the expanded sense proposed by composer-improviser-scholar George Lewis. As Lewis (2007) says, quoting philosopher Gilbert Ryle (1976): if one is not 'improvising warily, he is not engaging his somewhat trained wits in some momentarily live issue, but perhaps is acting from sheer unthinking habit. ...Thinking... is, at the least, the engaging of partly trained wits in a partly fresh situation. It is the pitting of an acquired competence or skill against an unprogrammed opportunity'. Consider witty conversation, which by definition is not composed in advance. Playing within the rules of a partial ordering is analogous to jazz improvising within a chord progression: improvising 'inside' the changes. Though some plays are excluded by the rules, there are still infinite plays within the rules, like in baseball for instance. Whether it's verbal repartee with another clever conversationalist, fielding a ball in a rule-bound game such as baseball, or forging a melody over a chord progression whilst responding to the unplanned nuances contributed by one's musical collaborators, the point of all these is to be prompted to respond to a fresh challenge.

One of the ways Babbitt responds to these situational challenges is to 'improvisationally' forge motivic connections between surface and structure by exploiting opportunities enabled by the structure's partial ordering. For instance, these connections are based on interval classes (in the main melody of *Semi-Simple Variations*) and major and minor triads (in 12-tone row of *Whirled Series*). Thus Babbitt has developed a system that serves up a series of challenging situational opportunities, and given the many (often thousands) of choices within each in each such situation, he often chooses to forge spontaneous references to a work's 12-tone row. See Dubiel (1997) for discussion of ways Babbitt does this.

The presented version of this paper employs a variety of custom-made animated computer graphics to illustrate mathematical properties as well as analytical points about the compositions. Finally a hypothetical musical instrument is proposed and audio-visually illustrated to suggest how one could literally improvise (in a live performance) using a Babbitt partial ordering structure.

Implications

The paper reveals new insights on the relation of heard surface to precomposed structure in Babbitt's music. Moreover it prompts critical reappraisal of the historical significance of Babbitt's compositional approach.

Keywords

Serialism, 12-Tone (Dodecaphonic), Babbitt, Theory, Improvisation, Quantitative, Composition.

Wintle, Christopher, 1976. 'Milton Babbitt's Semi-Simple Variations', *Perspectives of New Music* 14/15: 111–54.

REFERENCES

- Barkin, Elaine, 1967. 'A Simple Approach to Milton Babbitt's Semi-Simple Variations', *Music Review* 28/4: 316–22.
- Chua, Daniel, 1999. *Absolute Music and the Construction of Meaning*. Cambridge: Cambridge University Press.
- Dubiel, Joseph, 1992. 'Three Essays on Milton Babbitt, Part III: 'The Animation of Lists'', *Perspectives of New Music* 30/1: 82–131.
- Dubiel, Joseph, 1997. 'What's the Use of the Twelve-Tone System?', *Perspectives of New Music* 35/2: 33–51.
- Gloag, Kenneth, 2012. *Postmodernism in Music*. Cambridge: Cambridge University Press.
- Grant, Morag Josephine, 2001. *Serial Music Serial Aesthetics: Compositional Theory in Post-War Europe*. Cambridge: Cambridge University Press. (Coll. 'Music in the Twentieth Century'.)
- Lake, William E., 1986. 'The Architecture of a Superarray Composition: Milton Babbitt's String Quartet No. 5', *Perspectives of New Music* 24/2: 88–111.
- Lewin, David, 1966. 'On Certain Techniques of Re-Ordering in Serial Music', *Journal of Music Theory* 10/2: 276–87.
- , 1976. 'On Partial Ordering', *Perspectives of New Music*, 14/2 and 15/1: 252–59.
- Lewis, George, 2007. 'Improvising Tomorrow's Bodies: The Politics of Transduction', *E-misférica* 4/2, <<https://hemisphericinstitute.org/en/emisferica-42/4-2-essays/improvising-tomorrows-bodies-the-politics-of-transduction.html>>, accessed 20/04/2023.
- Ligeti, Gyorgy, 1958/60. 'Pierre Boulez. Decision and Automaticism in *Structure 1a*', *Die Reihe* 4: 36–62.
- Mailman, Joshua B., 2014 'Trajectory, Material, Process, and Flow in Robert Morris's String Quartet *Arc*', *Perspectives of New Music*, 53/2: 249–83.
- , 2013. 'Improvising Synesthesia', *Leonardo Electronic Almanac* 19/3: 346–78.
- Mead, Andrew, 1994. *An Introduction to the Music of Milton Babbitt*. Princeton (NJ): Princeton University Press.
- , 2009. 'The String Quartets of Milton Babbitt', in Evan Jones (ed.), *Intimate Voices: The Twentieth Century String Quartet*, vol. 2. Rochester (NY): University of Rochester Press, 210–37.
- Morris, Robert, 1995. 'Compositional Spaces and Other Territories', *Perspectives of New Music* 33/1–2: 328–58.
- , 1998. 'Voice-Leading Spaces', *Music Theory Spectrum* 20/2: 175–208.
- Ryle, Gilbert, 1976. 'Improvisation', *Mind* 85/337: 69–83.
- Starr, Daniel, and Robert, Morris, 1978. 'A General Theory of Combinatorality and the Aggregate', *Perspectives of New Music* 16/2, 50–84.
- Straus, Joseph, 2009. *Twelve-tone Serialism in American Music*. Cambridge: Cambridge University Press.
- Taruskin, Richard, 2005. *The Oxford History of Western Music*, 5 vol. Oxford/New York: Oxford University Press.
- Whittall, Arnold, 2008. *Serialism*. Cambridge: Cambridge University Press.