Introduction

This Element is written as a foundational text in the study of ambiguous or open notations, through the lens of semiotics. Open notations have historically been called "graphic notations"; however, not all graphic notations are ambiguous and not all open notations are graphic. There is a tendency to position "graphic notations" solely as open and more picture-oriented rather than system-oriented. But this view of graphics is reductive and ineffective, as many graphics are able to capture great detail. Statistical graphics are extremely precise, as are engineering schematics or blueprints.[1] A graphic notation that shows sound events in time has the potential to be more specific than the most rhythmically intricate standard notations of complexity composers like Brian Ferneyhough (b. 1943) and Michael Finnissy (b. 1946). Graphics communicate information with many levels of specificity; this text is concerned with intentional ambiguity in music notation, and thus the term "open notation" is preferred.

I have made an effort to keep things as concise and as readable as possible, and although much of this text is centered on theory, my ultimate goal is practice-oriented. I wrote this with the assumption that the reader has a working knowledge of standard music notation and a foundational knowledge of classical music of the common practice period. Prior knowledge of semiotics and linguistics is not required, as the relevant theory is explained in depth in Section 2. Many of the examples discussed in this Element consider the point of view of the performer in learning and performing open notation repertoire. As I am a classically trained pianist who specializes in performing the music of our time, it should come as no surprise that many examples in this volume are considered on the piano, even when a given score might afford a more open instrumentation. Musical ideas embark upon a complex journey to travel from the mind of the composer to the minds of the audience, by way of the score and the performer. I focus on just one stage of this process: the quiet space between the performer and the score, where ideas are formed but sounds have not yet come into being.

In Section 1, I consider the problems and opportunities that open notations create for the performer. Because musical information is often presented in radically different ways in these scores, the performer cannot rely upon conventional interpretation. Semiotics sheds light on the interpretive act, ultimately enabling performers to craft interpretations of this repertoire with clarity and integrity. I consider the revolutionary work of Earle Brown (1926–2002) in the

[1] Edward R. Tufte, *The Visual Display of Quantitative Information* (Cheshire, CT: Graphics Press, 1983), 54–77.

1950s with *Folio* (1952–1953), and connect it to more recent pieces by Will Redman (b. 1975) and Leah Asher (b. 1986); analyses of works by all three composers are featured in Section 3.

In Section 1, I also articulate the philosophical and aesthetic position of open notations by exploring the dynamic and ever-changing relationships among composer, performer, and score. Umberto Eco argues that "the dialectic between *form* and the *possibility* of multiple readings . . . constitutes the very essence of the 'open work.'"[2] The aesthetic value of openness is not restricted to music notation. It is more broadly connected to ways of thinking about communication in the creation and reception of art. In works that take openness as a primary aesthetic and compositional element, greater decision-making power is granted to the performer. Open notations foster unique sites of creative discourse and renegotiate traditional performer-composer relationships. The identities of open works are also mediated by *Werktreue* and the work-concept, which retain the position of the composer as sole author.[3] The score-as-work also undergoes transformation through entextualization, the "process of rendering a given instance of discourse a text."[4] Section 1 culminates in a discussion of the relationship between the score-as-work (a rigid artifact) and the score-as-discourse (a social space in flux).

In Section 2, I introduce four areas of semiotics that are central to my analyses of open notations. First, I broadly consider the foundational work of Ferdinand de Saussure[5] and C. S. Peirce.[6] Next, I examine perspectives on symbol systems from Nelson Goodman[7] and John Kulvicki,[8] which support a view of notations-as-systems. Third, I introduce the structural semiotics of Roman Jakobson[9] and David Lidov,[10] with specific attention paid to notational syntax. Finally,

[2] Umberto Eco, *The Open Work*, translated by Anna Cancogni (Cambridge, MA: Harvard University Press, 1989), 60.
[3] Lydia Goehr, "Being True to the Work," *Journal of Aesthetics and Art Criticism* 47, no. 1 (Winter 1989), 55–67.
[4] Greg Urban, "Entextualization, Replication, and Power," in *Natural Histories of Discourse*, edited by Michael Silverstein and Greg Urban (Chicago: University of Chicago Press, 1996), 21–44 at 21.
[5] Ferdinand de Saussure, *Course in General Linguistics* [1916], new edition translated by Roy Harris (La Salle, IL: Open Court, 1986).
[6] Richard Parmentier, *Signs in Society: Studies in Semiotic Anthropology* (Indianapolis: Indiana University Press, 1994).
[7] Nelson Goodman, *Languages of Art* [1968], new edition (Indianapolis, IN: Hackett, 1976).
[8] John Kulvicki, "Analog Representation and the Parts Principle," *Review of Philosophy and Psychology* 6 (2015), 165–180.
[9] Roman Jakobson, "Closing Statement: Linguistics and Poetics," in *Style in Language*, edited by Thomas A. Sebeok (Cambridge: MIT Press, 1960), 350–377.
[10] David Lidov, *Elements of Semiotics: A Neo-structuralist Perspective*, 2nd edition (2017), 19. https://davidlidov.com/about/elements-of-semiotics-2017/

I discuss the affordances of qualia and qualic transitivity, as developed by Nicholas Harkness[11] and Lily Chumley.[12]

In Section 3, I apply theory to practice in the analysis of works by Brown, Redman, and Asher. I consider the role of pitch content as symbol system in two works from Brown's *Folio*. Next, I examine Redman's use of three compositional tactics – *erasure*, *oversaturation*, and *extension* – in a page from his modular work *Book* (2006). Finally, I consider the roles of grammar and pattern, two syntactical frameworks, in crafting an interpretation of Asher's *TRAPPIST-1* (2017). As a set, these divergent works and their corresponding analyses show that notational ambiguity and openness are not trends of a bygone era, but compositional strategies that remain highly relevant today.

This Element is organized as a foundational text for scholars and students to use for their own semiotic analysis of open notations. As such, I include an appendix with a list of questions and prompts for approaching open scores with a semiotic eye.

1 Ambiguity as Opportunity

Like many young pianists, my first encounter with post-1945 Western classical music came surprisingly late in my studies. It wasn't until high school that my awareness extended beyond the too-common keyboard repertoire bookends of Johann Sebastian Bach (1685–1750) and Béla Bartók (1881–1945). The instructor showed the class some of George Crumb's (b. 1929) *Makrokosmos*, *Volume I* (1972), including "The Magic Circle of Infinity (Moto Perpetuo)" and "Spiral Galaxy" (Figure 1).

Crumb's dramatic notation in these movements piqued my curiosity about the ways in which notations organize and convey musical information to the performer. At the time, I had never seen anything like this score and was fascinated by how radically different it looked from the notations I knew. Most strikingly, the instructor made the claim that these notations – no matter how unfamiliar their shapes – are in fact quite conventional. The theatrical presentation of the spiraling staves does nothing to alter the information it conveys. Pianists who learn this repertoire, myself included, often take to these movements with scissors and tape to construct a more readable score. (Figure 2). In effect, this "straightening out" of the staves proves the point the

[11] Nicholas Harkness, *Songs of Seoul: An Ethnography of Voice and Voicing in Christian South Korea* (Berkeley: University of California Press, 2014).

[12] Lily Chumley and Nicholas Harkness, "Introduction: QUALIA," *Anthropological Theory* 13, no. 1–2 (2013), 3–11.

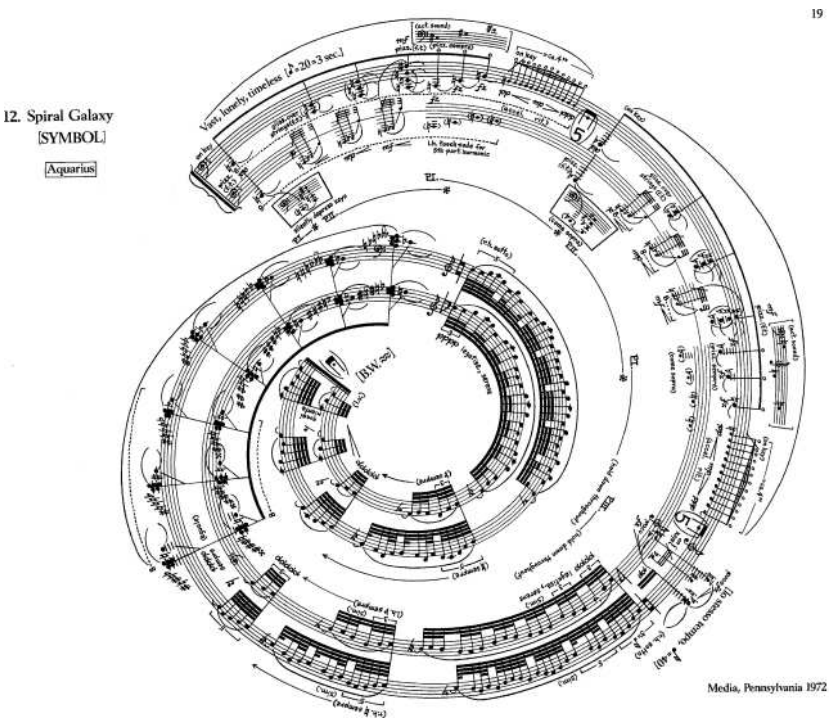

Figure 1 George Crumb. "Spiral Galaxy," from *Makrokosmos*, *Volume I* (1972), p. 19

instructor was making – Crumb's poetic twisting of the staves is a stylish obstacle to what ends up being an unambiguous performance.

And yet I wonder if in altering the score, something is lost. Is it possible that even though the pitch, rhythm, and dynamic content of the original and reconstructed scores remain the same, that the reconstruction itself changes something fundamental about what the work communicates to the performer? In "Spiral Galaxy," the five-line staff curls inward in a clockwise direction, forming a spiral. And yet nothing about the spiral shape changes the content of what is on its staves. For example, the very first note is a low A that is both plucked with the finger tip – "pizz. (f.t.)" – and played on the key – "on key." Although Crumb also notates some extended techniques not commonly seen in keyboard repertoire, they are clearly articulated on the page and are wholly unambiguous.[13] In fact, all pitch material, rhythmic material, dynamics, articulation, and character markings are

[13] Extended techniques are approaches to playing a musical instrument other than those originally intended. Examples on the piano include tone clusters, plucking the strings of the piano, and muting the strings of the piano, among others.

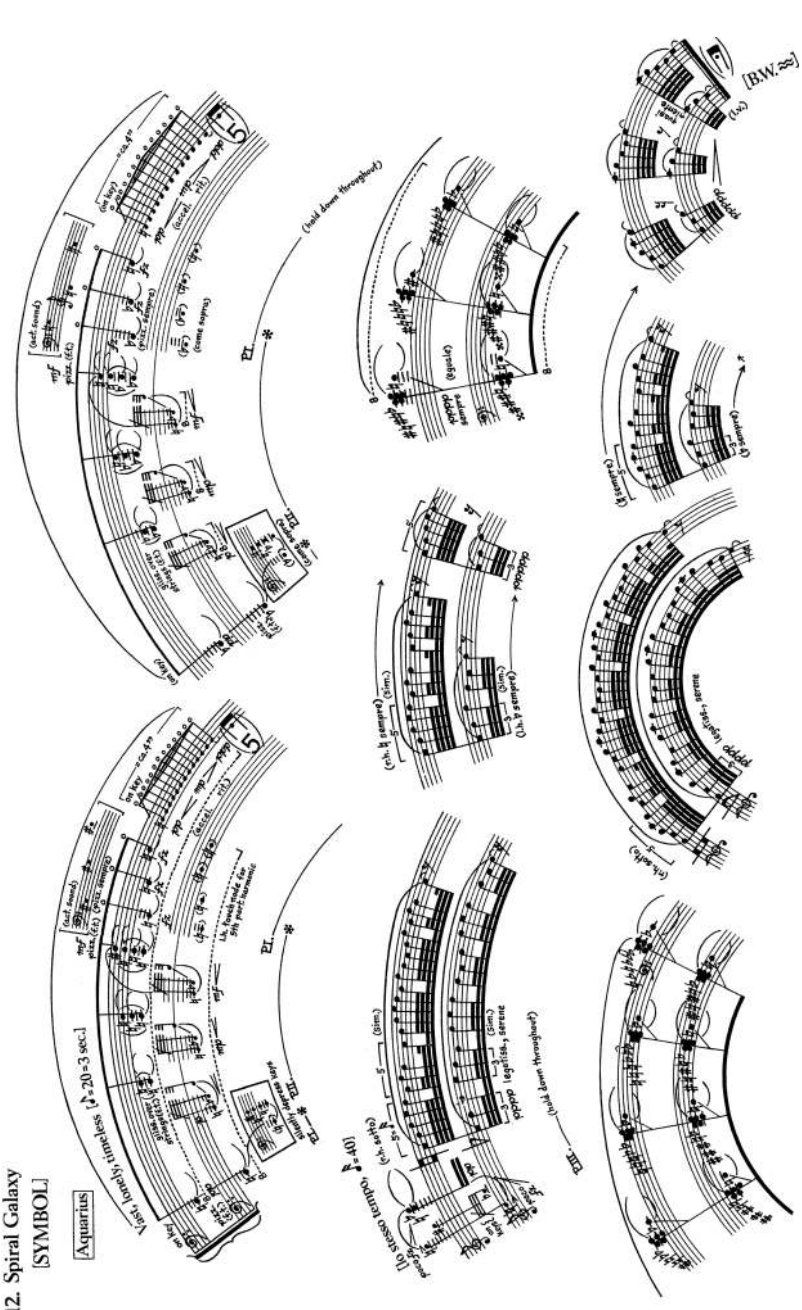

Figure 2 George Crumb. "Spiral Galaxy," from *Makrokosmos, Volume I* (1972), p. 19. Edited by Tristan McKay for performance.

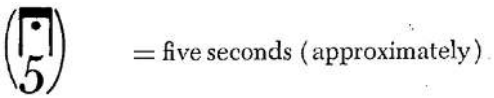

Figure 3 George Crumb. Excerpt from performance notes in *Makrokosmos*, Volume 1 (1972), p. 5

clear. Some unfamiliar markings, such as the number 5 in parenthesis with a square (Figure 3), are described in a key at the beginning of the score.

Without the key to decode this notation, the performer would not know what the composer intended. This type of notation, although unfamiliar, is also unambiguous because of the context Crumb provides at the beginning of the score. In fact, many composers in the twentieth and twenty-first centuries have taken it upon themselves to pen innovative notations that are clear and well defined. Another example would be the tone cluster notation used in pieces such as "Exhultation" (1919) by Henry Cowell (1897–1965).

The tone cluster notation (for a quarter note duration cluster) is a thick bar that connects two noteheads, vertically aligned. The noteheads at the lower- and uppermost points of the cluster indicate the lower and upper bounds of the cluster. Later in the piece, other durations appear. These include eighth notes (with flags) and half notes (with empty bars that connect between two half note noteheads). A sharp sign above each tone cluster indicates that only the black keys are to be played. Cowell further describes the notation in a short note at the top of the score:

> The tone clusters indicated by these symbols are to be played with the forearm, with the flat of the hand, or with the fist, depending on the length of the cluster. All the tones should be played exactly together and the pianist must see to it that the outer limits of the clusters are absolutely precise, as written, and that each tone between the outer limits is actually sounded.[14]

Without Cowell's instruction, the pianist would have to either disregard the unfamiliar notation or make an educated guess as to what it indicates. With Cowell's instruction, the pianist has a clear idea of how to execute the tone cluster technique, and the notation therefore has a clear and unambiguous meaning.

For notations of extended techniques such as this, the composer effectively extends the lexicon of standard notations with new signs. Cowell created a new sign to convey a clear and specific technique for which there was no notation.

[14] Henry Cowell, "Explanation of Symbols and Playing Instructions," in *Piano Music by Henry Cowell* (New York: Associated Music, 1960), back matter.

Over the past century of use, this notation became incorporated into a wider performance practice. Today, a pianist well versed in extended techniques should recognize the intended meaning of this sign without need of a key; it is part of a shared vocabulary.

1.1 Brown's *November 1952* and *December 1952*

Ingenuity does not necessitate ambiguity. Innovative or unfamiliar notations can be just as clearly defined as the body of notations associated with the five-line staff. The question remains: what constitutes ambiguity in music notation? The enigmatic *December 1952* by Brown provides one example. In this score, common elements of Western music notation such as the five-line staff, dynamic markings, and noteheads are completely absent. Instead, short vertical and horizontal lines of varying thicknesses are suspended in blank space on a single page (Figure 4).

These notations extend a great amount of openness to the performer in crafting an interpretation in practice. Without any of the usual notational

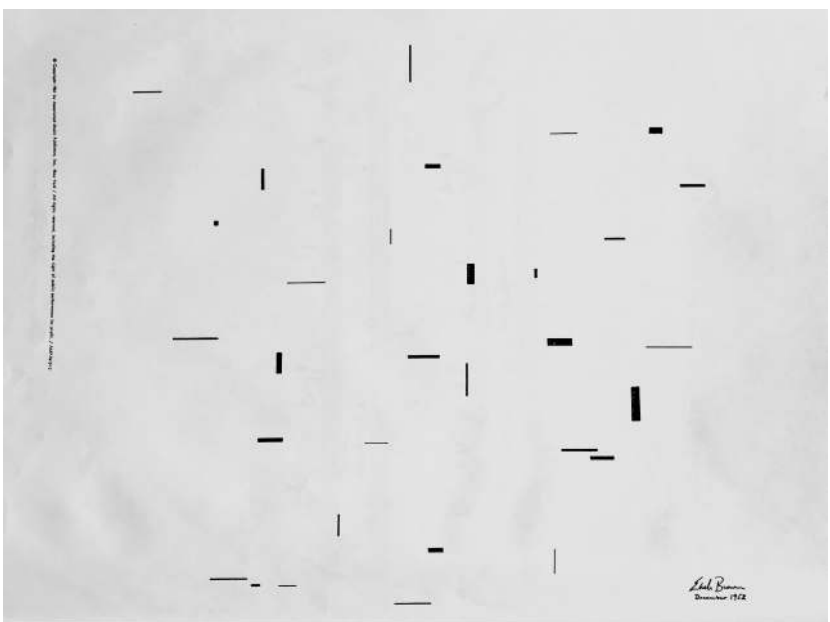

Figure 4 Earle Brown. *December 1952* from *Folio* (1952–1953)
A *Folio* AND FOUR SYSTEMS by Earle Brown Copyright © 1961 (Renewed) by Associated Music Publishers, Inc. (BMI) International Copyright Secured. All Rights Reserved. Reprinted by Permission

conventions found within more standardized notation systems, works like *December 1952* pose a challenge to the performer: how do open notations represent or convey musical actions?

To interpret *December 1952*, a performer must decide how visual parameters relate to musical parameters such as pitch, duration, dynamic, timbre, and articulation. Even with abstract notations such as this, an unwritten expectation of consistency in their interpretation is common. For example, if a performer decides that the thickness of the lines in *December 1952* determines gradations of dynamic, then this rule should apply globally for every such line. *December 1952* is part of a larger set of works by Brown called *Folio*. The edition of *Folio* published by Associated Music compiles some of Brown's notes and writings on the pieces into a prefatory note. Brown gives some loose guidelines for interpreting *December 1952*, such as interpreting the score to have three dimensions (vertical, horizontal, and temporal), and assigning the thickness of each line to indicate the relative intensity (dynamic level) of the sound.[15] However, these notes are not guidelines so much as evidence of Brown's conceptualization of the piece at one moment in time. A performer could take a number of other approaches to the notation. Perhaps the thickness of the lines could indicate duration, so that time is aligned to the vertical axis instead of the horizontal. Or maybe the thickness of the lines has timbral significance in which thicker lines indicate a more noise-based sound and thinner lines indicate a sound that is more pitched. The approach outlined by Brown may seem like the most natural way of interpreting these notations, possibly because it follows some of the conventions associated with the five-line staff, a notational framework whose rules are familiar to most musicians; in both cases, durations are a function of the horizontal axis, and pitch is a function of the vertical axis.

Brown is closely associated with the New York school of composition, the defining musical institution of mid-century American experimentalism, which also includes John Cage (1912–1992), Christian Wolff (b. 1934), and Morton Feldman (1926–1987). He is best known for his experimental compositions, which use techniques and media including twelve-tone and Schillinger serialized music,[16] tape and electroacoustic music, graphic

[15] Earle Brown, "Prefatory Note," in *Folio (1952/53) and 4 Systems (1954)* (New York: Associated Music, 1961).

[16] The Schillinger System of Musical Composition, developed by Joseph Schillinger (1895–1943), was originally a four-year progression of classes taught through private instruction. The system is based on logical and mathematical concepts, and provides a structured approach to

notation, time notation, open form, and collage.[17] In "The Notation and Performance of New Music," Brown describes a turning point in his compositional practice in which he "came to a point of indicating rhythmic complexity and durational subtleties which seemed to [him] to be beyond counting and beyond performers' conscious or unconscious control of metric divisions on which standard notation is based."[18] In Brown's music, this complexity had developed out of his interests in the "total organization" of the Schillinger System and from generative principles that did not rely on a regular pulse or beat. In seeking a solution to this notational "problem," Brown drew upon concepts of mobility and immediacy from the work of visual artists Alexander Calder (1898–1976) and Jackson Pollock (1912–1956).[19] Calder's mobile pieces – simple geometric shapes suspended by wire and set in motion – are ever-changing structures. Pollock's "action painting" technique, used to create drip paintings such as *Mural on Indian Red Ground* (1950) and *Autumn Rhythm* (Number 30) (1950), captures the idea of mobility in a more embodied fashion. The final paintings, while static themselves, are very much about the artist's movement and choreography. Brown's notations in *Folio* (1952–1953) challenge conceptions of the score as a static artifact, and instead embrace transformation and variation.

December 1952 is perhaps the most recognizable work that uses open notations. The notation of *December 1952* is abstract in that it shares no commonalities with standard notations; it "is the graphic score often cited as an extreme pole in mid-twentieth-century, American avant-garde composition."[20] Brown wrote very few pieces with purely abstract graphic notations; others include *Hodograph I* (1959) and a number of one-page scores from *Folio II*, a collection of works written between 1970 and 2000 that remains unpublished.[21]

December 1952 is an example of what is often called "graphic notation." According to Brown, it is the earliest example, along with *November 1952* from the same set.[22] In *Notations in New Music*, Erhard Karkoschka

composition that transcends genre and aesthetic styles. The goal is to provide composers with broadly applicable solutions to compositional problems.

[17] Jason Cady, "An Overview of Earle Brown's Techniques and Media," in *Beyond Notation: The Music of Earle Brown*, edited by Rebecca Y. Kim (Ann Arbor: University of Michigan Press, 2017), 1–20.

[18] Earle Brown, "The Notation and Performance of New Music," *Musical Quarterly* 72, no. 2 (1986), 180–201 at 191.

[19] Earle Brown, "On December 1952," [1970; transcription of audio] *American Music* 26, no. 1 (Spring 2008), 1–12 at 1.

[20] Elizabeth Hoover, "Collage and the Feedback Condition of Earle Brown's *Calder Piece*," in *Beyond Notation: The Music of Earle Brown*, edited by Rebecca Y. Kim (Ann Arbor: University of Michigan Press, 2017), 159–187 at 163.

[21] Cady, "An Overview of Earle Brown's Techniques and Media," 6.

[22] Brown, "On December 1952," 7.

differentiates musical graphics from other notation types by their reliance upon graphic qualities to communicate information. He argues that unlike symbols,[23] which have a clear and defined content, graphic notations do not; their ambiguity can lead to any number of different interpretations.[24] Brown referred to this compositional quality as "creative ambiguity," in which a graphically notated piece leads to vastly different-sounding performances while maintaining its identity as an instance of the same work.[25] For Brown, ambiguity is an opportunity for creative engagement on the part of the performer. It is an aspect of composition and notation that is vital to the life of the work.

At the core of *December 1952* is Brown's preoccupation with mobility – movement, instability, and shifting structural relationships. His initial conception of the piece took the form of a box constructed with motorized parts. Vertical and horizontal elements inside the box would physically move during performance, and could be read as notation. When this idea proved to be mechanically impractical, Brown settled on a single-page score that presents something like "a photograph of a certain set of relationships of these various horizontal and vertical elements."[26] He substituted the physical mobility of his initial idea with a kind of conceptual mobility. The end result is a work that actively engages with the creativity of the performer, who must be deeply involved in deciding how to translate the notations on the page into musical sound.

1.2 Redman's *Book* (2006)

The notion of ambiguity as opportunity for creative engagement is not unique to Brown or the New York school; composers such as Redman continue to engage with these concepts in their creative practice.[27] Unlike many graphically notated pieces that feature notation devices created by the composer *ex nihilo* (such as those featured in the next Section on Asher's *TRAPPIST-1*), Redman mostly draws upon signs from the lexicon of standard notations. Redman's

[23] The word "symbol" here is a crude label signifying the body of notations related to conventional Western music notation. This use of the word lacks the specificity and significance of theory by Goodman and Peirce, which are discussed further in Section 2.

[24] Erhard Karkoschka, *Notation in New Music: A Critical Guide to Interpretation and Realization*, translated by Ruth Koenig (New York: Praeger, 1972), 3.

[25] Clemens Gresser, "Earle Brown's 'Creative Ambiguity' and Ideas of Co-creatorship in Selected Works," *Contemporary Music Review* 26, no. 3/4 (June/August 2007), 377–394.

[26] Brown, "On December 1952," 3.

[27] Much of the material in this Element on Redman was originally published in: Tristan McKay, "Graphic Notations As Creative Resilience in Redman's *Book* (2006)," in *Semiotics 2018: Resilience in an Age of Relation*, edited by Geoffrey Ross Owens and Elvira Katić (Charlottesville, VA: Philosophy Documentation Center Press, 2019), 157–171.