Graphic Notation and Musical Graphics

by **Julia H. Schröder**

Abstract

Musical graphic notation is a written representation of music that uses none or only few of the elements of traditional staff notation.[1] Graphic notation is often an indeterminate, ambiguous type of notation whose symbols and interpretations are explained in a legend or in annotations.

Musical graphics, on the other hand, has its own aesthetic value as a visual art and does not have to be defined through its translatability into music. Like visual scores—that is, images instead of graphics—musical graphics is composed not with the intent of producing concrete music; it may, however, be translated into music.[2]

The first graphic notations and musical graphics were produced within the **New York school of composers** around **John Cage**: **Morton Feldman's Projection** from 1950 was the first instance of graphic notation (called graph notation), and **Earle Brown's December 1952** is often deemed the first work of musical graphics (called musical graph). However, the term musical graphics, or *musikalische Grafik*, was coined by **Roman Haubenstock-Ramati** in Europe, where in the late 1950s a music-theoretical discussion began that primarily revolved around the dissolution of the concept of the work of art and the aesthetics of autonomy. Starting in the 1970s, more and more visual artists began to engage in musical graphics, and improvising performance artists developed new interpretational styles.

Other categorizations of notation specify their function. Thus, aural scores are descriptive graphic representations for music, mostly for tape, that are produced after the music has been performed, with the tape possibly having been made by means of a realization score. The latter has in common with the (prescriptive) action score that the action generating the sound is described, not the acoustic result. Thus they are prescriptive.

[1] On the origin and history of notation, see Willi Apel, The Notation of Polyphonic Music, 5th ed. (Cambridge, Mass.: Medieval Academy of America, 1961). See also Johannes Wolf, Handbuch der Notationskunde, 2 vols. (Leipzig: Breitkopf & Härtel, 1913, 1919).

[2] For more details, see Helga de la Motte-Haber, Musik und Bildende Kunst: Von der Tonmalerei zur Klangskulptur (Laaber, Germany: Laaber-Verlag, 1990), 47–56 and 223–251, here 53 and 227.

1 Precursors

Figural notations, precursors of graphic notation, were produced as early as around 1400. The lines are arranged in the shape of a heart, a circle, or a cross, and in addition to their decorative character, they often have the form of a puzzle canon.

Graphics on music paper, such as **Moritz von Schwind's** (1804–1871) **Die Katzensymphonie** (**The Cat Symphony**, 1868),[1] were prevalent in the nineteenth century.[2] At this point in time, the score had already become autonomous as text and was available independent of the performance of the piece as an autonomous, time-independent foundation of the ideal form.

There were various attempts in the 1920s to overcome the boundaries between the art genres. At the same time, visual artists used music as a model for **abstract art**. In addition to **Paul Klee's** graphic representation of a piece by **Bach** (**Fugue in Red**, 1921/22), in 1923, **Wassily Kandinsky** developed a graphic representation of music by translating the beginning of **Beethoven's Fifth Symphony** into dots.[3] Bauhaus student **Karl Peter Röhl** drew abstract graphics on music paper as early as 1926.[4]

2 Graphic Notations and Musical Graphics after 1950

2.1 American Development

In 1950, the **New York school of composers** (**John Cage**, **Morton Feldman**, **Earle Brown**, and **Christian Wolff**) began developing new forms of notation. The central category of this form of notation is indeterminacy, through which the composer grants the performer improvisatory latitude.[5] **Morton Feldman's** composition **Projection 1** (1950) in **graph (paper) notation** is indetermined with respect to its pitch. **Feldman** does, however, prescribe three different registers and thus a framework within which the performer has to choose the pitch.

John Cage's performance material **Cartridge Music** (1960) is also indetermined, as are several of the compositions in the **Variations series** (1958–1967), which consists of various printed transparencies that the performer can lay over one another in a new way for each **performance** and interpret according to **Cage's** instructions. The resulting values often specify **actions** and not sounding results. In his **Concert for Piano and Orchestra** (1958), **Cage** assembles a compendium of different notations for the piano solo part.

Earle Brown's December 1952 from the **Folio** series is regarded as the first graphic music. Instrumentation, pitch, and rhythm, as well as the reading order and turning of the page, are indetermined. By using these types of graphics, the composer **Brown**, who was interested in jazz, wanted to motivate the performers to improvise.[6] Whereas **Brown** aimed at improvisation with the spontaneous translation of the visual impression, **Feldman** and **Cage** avoided the term *improvisation* and demanded the detailed elaboration and planning of each performance.

In the 1950s, compositions by the **New York school of composers** were primarily played by **David Tudor** (1926–1996), one of the leading performers of contemporary music for piano. He *realized* the indetermined pieces by devising a playing score: he laid down all of the decisions to be made by the performer in a rehearsal phase and put them in writing.

Between 1956 and 1962, **Tudor** performed at the **Darmstädter Ferienkurse für Neue Musik** (**Darmstadt New Music Summer School**). Numerous European composers wrote works specifically for him. In 1959, **Sylvano Bussotti** wrote the following about his **Five Piano Pieces for David Tudor**: **"The expression 'for David Tudor' in the title is not a dedication but almost designates an instrumentation. [...] In many cases, the acoustic event that such graphics may trigger remains in the pianist's hands."**[7]

2.2 European Development

On the one hand, the development of graphic notation can be understood as an indication of changes in music,[8] whereby above all continuous sound processes increasingly take on more importance in the contemporary practice of composition. With the aid of graphic notation symbols, these continuous sound movements can now be fixed, whereas conventional staff notation merely symbolizes discrete pitch and tone duration.[9] On the other hand, the dissolution of discrete notation was accompanied by the abandonment of the concept of the work of art, because the frequently ambiguous and open forms no longer comply with the criteria for consolidation.

Despite the distinct pictorial nature of his graphic notation (from 1958), **Anestis Logothetis** (1921–1994) distinguishes it from musical graphics, which he considers a means of improvisation.[10] The symbols, associative

signs, and action notations that he uses in his graphic notations cancel out any conventional reading order.[11] In contrast, **Sylvano Bussotti** (born in 1931) seems to be concerned with the transition between symbols (conventional notation) and graphics (musical graphics) when at the end of a system he splits up the staves or twists them. **"The ways to graphically record music realize a scale from the known staff notation to the unknown symbol."**[12]

The term *musikalische Grafik*, or *musical graphics* was coined by **Roman Haubenstock-Ramati**,[13] who in 1959 initiated an exhibition of musical graphics in Donaueschingen through the music publisher **Universal Edition**. One example of his musical graphics is **Pour Piano** (1971).

Often, musical graphics are also meant to open up elements of expression to the viewer or the performer that cannot be accomplished by standard symbolic notation.[14] In musical graphics, the expressive qualities that in cases of music written in traditional staff notation can be experienced only during the performance can emanate directly from the visual effect. Thus, it is conceivable to have music that is only read: **Dieter Schnebel's Mo-No. Musik zum Lesen** (**Mo-No: Music to Be Read**, 1969) is a book with musical graphics whose sole aim is imagined sound. **Schnebel** blends sound memories in the form of excerpts (i.e., quotations of musical scores), creative sound presentation in musical graphics (in order to imagine unheard sounds), and quietly read text fragments.

As early as the 1950s, **Iannis Xenakis** (1922–2001) assumed the translatability of spatial into tonal structures. He developed the **UPIC**,[15] a computer with graphic interface by means of a pen that transforms graphics directly into sound.

3 Graphic Notations and Musical Graphics by Sound Artists

With the emergence of cross-genre **sound art**, visual artists began to use musical graphics. Their interest in the individual handwriting manifesting itself in musical graphics is greater than that of composers, who were concerned with the establishment of a new, normative graphic canon. **Nelson Goodman** distinguishes the autographical, artistic signature from allographic notation, which can be standardized and thus reproduced and of which there is no original.[16]

In the mid-1970s, several visual artists turned to the border area of music. In 1976, the artist **Gerhard Rühm** (born in 1930) began creating *visual music*, which does without a performer or assigns this role to the reader.[17] Besides *Lesemusik* (*music for reading*), freely drawn graphics on sheet music that do or do not specify instruments, there are *Notenüberzeichnungen* (*overdrawn sheet music*), in which the notes of a printed piece of music are blackened out with pencil so that the musical density developments are visually heightened.

As a sound artist, **Rolf Julius** deals with the structure of sound, its combination with visual elements, and its position in space, as well as with the associative potential that his musical graphics, such as the **Song Books**, have for musicians. In **Verstrijken** (2007), the artist **William Engelen** (born in 1964) transcribes the daily routine of musicians into a graphic score to which the musicians in turn play. For listeners, the notes are simultaneously attached to the wall.[18]

4 Aural Scores

Aural scores are scores that are produced a posteriori, transcriptions that visualize music graphically and thus enable analytical perception of the music. They were created above all for electroacoustic music, such as **György Ligeti's Artikulation** (1958), for which **Rainer Wehinger** produced a study score in 1970.[19] In compositions for live performers with audiotape, transcriptions are often produced that have a graphic representation of the audiotape part in a system above or below the instrumental or vocal part in order to facilitate the **synchronization** of the performer to the tape. These transcriptions are referred to as performance or playing scores and are effectively cue sheets for the performer. For **Karlheinz Stockhausen's** electronic **Studie II**, there is a somewhat more analytical score produced subsequently;[20] its documentary accuracy allows a second realization of the piece. The score for **Stripsody** by the singer **Cathy Berberian** was created by an artist according to her instructions.[21] Aural scores for electronic music also have artistic value, such as those designed in 2006 in classes led by **cyan**, the team **Daniela Haufe** and **Detlef Fiedler**, as well as **Carsten Nicolai**, at the **Hochschule für Grafik und Buchkunst** (**Academy of Visual Arts**) in Leipzig.[22]

5 Action Notation

Instead of a tonal result such as the one specified by aural scores, action notations are verbal or graphic instructions for the performance of an action that creates a sounding result. Their similarity to movement notation becomes apparent above all in experimental **musical theater**, such as in compositions by **Mauricio Kagel**. **Mikrophonie** by **Karlheinz Stockhausen** is an example of an action notation of live electronic music. Action notations were used in the form of tablatures, notations denoting the fingerings for instruments such as lutes,

between the fifteenth and eighteenth centuries. There are also action notations in traditional staff notation, such as *sul ponticello*, which refers to placement of the bow on string instruments.

all footnotes

[1] Moritz von Schwind (1804–1871), Die Katzensymphonie (Le Chat Noir), 1868, Staatliche Kunsthalle Karlsruhe; ill.: http://www.onlinekunst.de/januar/21_01_2_Schwind.htm; in Vom Klang der Bilder: Die Musik in der Kunst des 20. Jahrhunderts, ed. Karin von Maur (Munich: Prestel, 1985), 49, cat. no. 37.

[2] See also Grandville, Ronde, Tarantelle, 1840 [a circular notation system with dancing stick figures], in Le Magasin pittoresque 8, no. 31 (1840): 245.

[3] Wassily Kandinsky, Punkt und Linie zu Fläche: Beitrag zur Analyse der malerischen Elemente, Bauhaus-Bücher, vol. 9, ed. Walter Gropius and Ladislaus [sic] Maholy-Nagy (Munich: Albert Langen, 1926; Bern: Benteli, 1955), 44ff.

[4] Karl Peter Röhl, 1926, Abstrakte Folge, in Karl Peter Röhl: Aquarelle, Zeichnungen, Druckgraphik 1916–1961, ed. Jens Christian Jensen, exh. cat. Kunsthalle zu Kiel and the Schleswig-Holsteinischer Kunstverein (Kiel, 1979); von Maur, Vom Klang der Bilder, 24 and 207, cat. nos. 334, 335.

[5] John Cage, 1958, "Indeterminacy," in Silence (Middletown, Conn.: Wesleyan University Press, 1961), 35–40.

[6] Earle Brown, "Notation und Ausführung Neuer Musik," in Notation Neuer Musik, Darmstädter Beiträge zur Neuen Musik 9, ed. Ernst Thomas (Mainz: Schott, 1965), 64–86, here 76–77.

[7] Sylvano Bussotti in the foreword to his score Five Piano Pieces for David Tudor, 1959, Vienna.

[8] Carl Dahlhaus, "Notenschrift heute," in Notation Neuer Musik, Darmstädter Beiträge zur Neuen Musik 9, ed. Ernst Thomas (Mainz: Schott, 1965), 9–34.

[9] Ivanka Stoianova, "Musikalische Graphik," Zeitschrift für Semiotik 9, nos. 3–4 (1987): 283–299. Unfortunately, Stoianova does not distinguish between graphic notation and musical graphics.

[10] Anestis Logothetis, "Graphische Notation," in Anestis Logothetis: Klangbild und Bildklang, Komponisten unserer Zeit, vol. 27, ed. Hartmut Krones (Vienna: Verlag Lafite, 1998), 224.

[11] Anestis Logothetis, "Zeichen als Aggregatszustand der Musik," in Anestis Logothetis, ed. Krones, 32–75.

[12] Bussotti in the foreword to his score Five Piano Pieces for David Tudor, 1959, Vienna.

[13] Dahlhaus, "Notenschrift heute," 1965, 30.

[14] Here it requires verbal instructions.

[15] Unité Polyagogique Informatique du CEMAMu (Center for Research in Mathematics and Music Automation, founded in 1965); cf. Iannis Xenakis Formalized Music: Thought and Mathematics in Music (Hillsdale, N.Y.: Pendragon, 1992), 329–330.

[16] Nelson Goodman, Languages of Art: An Approach to a Theory of Symbols (Indianapolis: Hackett, 1976), 112ff.

[17] Gerhard Rühm, Gesammelte Werke, 2.2: Visuelle Musik, ed. Michael Fisch (Berlin: Parthas, 2006).

[18] William Engelen, "Verstrijken … die Zeit, die vergeht," in Positionen: Texte zur aktuellen Musik 76 (August 2008): 44–45; catalogue, William Engelen, Verstrijken: Audio Works 1999–2008 (Nuremberg, 2008); http://www.william-engelen.de/project/verstrijken_ensemble/index.htm.

[19] Rainer Wehinger, Hörpartitur to György Ligeti's Artikulation, 1958 (Mainz: Schott, 1970).

[20] Karlheinz Stockhausen, Studie II (Vienna: Universal Edition, 1954).

[21] Cathy Berberian, Stripsody: solo voice (New York: C. F. Peters, 1966). Graphics by Roberto Zamarin.

[22] Sonambiente 2006; http://www.sonambiente.net/de/06_cooperations/6M2hgb_werk.html.

see aswell

People

Works

Timelines
1950 until today

All Keywords
no Keywords available