

Semiotik Semiotics

Ein Handbuch zu den zeichentheoretischen
Grundlagen von Natur und Kultur
A Handbook on the Sign-Theoretic
Foundations of Nature and Culture

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54. Sign conceptions in music in the Latin Middle Ages

1. The state of research
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1. The state of research

The study of medieval musical culture has until now remained substantially linked to the research interests and methodologies characteristic of its early phase at the beginning of this century. Research projects usually have either a biographical and documentary approach (e. g., the discovery of documents which help to reconstruct the biography of a musician) or a paleographic and philological one (e. g., the description of sources containing musical compositions and their transcription in modern notation) (Hughes, 1980).

Semiotic studies of music, on the other hand, are currently dedicated almost exclusively either to general theoretical questions or to the analysis of musical compositions belonging to the modern or contemporary era (Nattiez 1974; Lischka 1987).

There has thus been no common ground upon which semiotics and the study of medieval music could meet. In this context, the present study concentrates on two themes, with regard to which there is both reflection on the part of musical theorists of the time and some mention in present-day literature. The first is that of music as a system of communication constructed in a similar way to verbal language (Gallo 1981; Gallo 1985: 1–7). The second is that of measured polyphonic notation considered as a system of graphic signifiers and acoustic signifieds (Gallo 1973; Gallo 1984; Gallo 1985: 113–117).

2. Music as a system of language

The considerations made by medieval theorists of music on the structural analogies between music and verbal language were preceded and influenced by those of the philosophers of Greek antiquity (cf. Art. 43). In ancient Greek culture, the study of grammar and the study of music had traditionally been combined (cf. Art. 42). This is also testified, for example, by the fact that many authors such as Lasos of Hermion, Democritus, Hip-

pias and Heraclides Ponticus studied both disciplines. For Philodemus they were analogous; for Plutarch their object of study was the same: the human voice. This led to the formation of a common terminology: *phthóngos* was the musical sound whereas *diphthóngos* was the union of two vowels; *symphōniai* were consonants in both speech and music, *syllabē* was a unit of speech but also the fourth interval. It was particularly important that the similarities in the structuring of the two systems came to light early. In some of Plato's dialogues, it was pointed out that both language and music are constituted by a fixed number of minimal elements (*stōicheia*): the letters of the alphabet and the notes of the scale respectively, which combine variously to form verbal speech and musical composition. Aristotle went on to compare the series of letters in the alphabet from *álpha* (α) to *ómēga* (ω) to the complete series of sounds issued by the *aulós*, and he showed how the alphabet has three double consonants (*zēta*: ζ, *xī*: ξ and *psī*: ψ) and how music also has three consonant intervals, *diapēnte*, *diatēssaron* and *diápason* (cf. Aristotle's *Metaphysics* and the commentary by Alexander of Aphrodisia). Aristoxenos, a musical theorist and disciple of Aristotle, gave particular emphasis to the functional similarities of the two systems. In the same way that verbal discourse is made possible by combining individual letters into syllables, so musical melody is made possible by combining individual sounds into intervals. And just as a combination of letters does not necessarily create a syllable (some do while others do not), in the same way not any combination of sounds but only specific ones give rise to musical intervals. According to Aristoxenos, there was a natural law (*phýsis*) which determined in an absolute manner which combinations of letters and sounds were valid for each system. A work attributed to the school of Aristotle (*Problemata* XIX) pointed to similarities also in terms of the syntactic functioning of the two systems: the *mésē* note (central to the Greek musical scale), because of its frequency in melody and its linking function, seemed to play a rôle similar to that played by the particles *té* and *kai* (conjunctions in Greek) in verbal discourse. For the author of *The Sublime*, the substitution of a single principal sound by a number of accessory sounds, *pa-*

raphōnia, appeared to be a procedure similar to that of *periphrasis*, where one principal word is substituted by a number of words to make up a phrase with the same meaning. Some writers touch, albeit rather casually, upon the problem of meaning in the musical system. According to Aristoxenos, the individual sounds are of themselves without importance (*adiáphoroi*); it is rather the way they are used (*chrēsis*) which gives rise to something we can call a musical composition (*melopoia*). According to the author of *The Sublime*, the individual notes issued by the *cetra* are on their own completely without meaning (*oudèn haplōs sēmainōntes*); it is their movement and their combination into intervals which gives rise to the marvelous effects of music.

The idea of the structural analogy between music and language was transmitted to the Latin world by the commentary of Calcidius on Plato's *Timaios*. In this text, the author translated a passage of the Aristotelian Adrast, reported by Theon of Smyrna, in which it is asserted that just as there are words (verbs and nouns) in language, constituted by syllables which are in turn made up of indivisible units (the letters of the alphabet), so are there in music systems (tetrachords, pentachords, octachords) constituted by intervals in turn made up of indivisible units, in this case the notes of the scale. It is significant that one of the first and most important treatises of the Carolingian era, the so-called *Musica Enchiriadis* (cf. Schmid 1981), begins with a literal quotation from the passage of Adrast, namely from the translation by Calcidius. In this early period of medieval treatises on music, the analogy with the structure and functioning of verbal language was of great help to the musical theorists who were trying to lay down the foundations for a theory of the Christian chant. Emphasis was put first of all on the limited number of constitutive elements which, through combination, permit very varied outcomes. As every verbal text is made up of combinations of the 24 letters of the alphabet, observes Guido of Arezzo (died after 1033), so all melodies are made up of combinations of only seven sounds. On a didactic level, it was pointed out that there was an analogy between the *abecedarium*, the book used to teach the alphabet, and the *monocordum*, the instrument upon which the musical notes were learnt. As a consequence, the difference between the musician, someone who knows the rules of

music, and the singer, the person who merely sings the song, was thought to be the same as that between the grammarian, someone who knows the rules of language, and the reader, the person who merely reads the text (Aurelian of Reomé, fl. 840–850; cf. Gushee 1975). Indeed, it seems that the entire theoretical basis of the chant was given a precise analogy in verbal discourse. There are 8 *modi* which can be used for every type of liturgical melody, as there are 8 *partes orationis* which make up every verbal discourse (Guido of Arezzo and commentaries in Smits van Waesberghe 1955).

The particular system of writing down the chant, with the notation of isolated sounds or of sounds combined in groups of two to four suggested to Pseudo Odon (active end of the 10th century; cf. Gerbert 1963) a further elaboration of the ancient *tópos* of the structural analogy between music and language. As in verbal language, where either single letters or groups of two to four letters form one syllable, in music a single note can be sounded alone, or notes can be combined in groups of two to four. The neums can reasonably be termed musical syllables. Moreover, moving to the next stage of articulation, just as one single syllable or the combination of syllables constitutes a word which has a certain meaning, so the single neum or neums combined in groups of two or more (inasmuch as they reach specific points of the scale such as the tonic, the fourth or the fifth) constitute units which could be described as musical words with meanings (*quae aliquid significant*). Furthermore, just as a word or a group of words constitutes a part of speech with a given meaning, so one, two or more melodic segments constitute a complete musical composition: a verse, an antiphon or a responsory. And finally, just as many phrases in verbal discourse can be combined to constitute a volume, so many musical compositions put together can make up a book of liturgy, an antiphonary. On the basis of these principles, a criterion for the analysis of musical composition was drawn up by means of a process of segmentation similar to that used by grammarians for verbal discourse. Johannes Cotton (fl. ca. 1100; cf. Smits van Waesberghe 1950), proposed the same division into *comma*, *cola* and *periodus* according to which the beginning of the third chapter of the Gospel of Saint Luke was divided, for the antiphon *Petrus autem*, for the office of

Table 54.1: The parallel segmentation of verbal and musical discourse in medieval musicology

periodus colon comma		periodus colon comma
[	[Anno quintodecimo imperii Tiberii Caesaris,	[
[	[procurante Pontio Pilato Judaeam,	[
[	[tetrarcha autem Galileae Herode,	[
[	[Philippo autem fratre eius tetrarcha Itureae,	[
[	[et Lysania Abilinae tetrarcha,	[
[	[sub principibus sacerdotum Anna et Caipha:	[
[	[factum est verbum Domini super Joannem,	[
[	[Zachariae filium in deserto.	[

[	[	[
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[	[	[
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[	[	[
[	[	[
[	[	[
[	[	[

the feast of Saint Peter in Chains (cf. Table 54.1).

This 'linguistic' criterion based on segmentation was to remain the basis of all kinds of musical analysis for centuries.

3. The semiotics of measured notation

With the development of three- and four-voice polyphony by the Notre Dame school in Paris between the end of the twelfth and the beginning of the thirteenth century, it became necessary to introduce something entirely new into the theory and practice of music: a system which would make possible the control of the simultaneous flow of different voices by giving precise measurement to the relative length of the individual notes. The music composed and arranged for performance was made up of several parts organized according to a precise sequence of values, and therefore far too complex to be mastered by memory alone or entrusted solely to an oral tradition. Therefore musicians had to develop a system of symbols which would enable them to structure and preserve this measured music on paper.

At this point, as the so-called Anonymous IV points out, there were two sides to the art of music: sound (*soni* or *signa formalia*) and written symbol (*puncta* or *signa materialia*). This double system of sound and writing reproduces, from another point of view, the analogy between verbal and musical lan-

guage. As Johannes of Grocheo (fl. ca. 1300; cf. Rohloff 1972) pointed out, in the same way that the art of writing and the invention of the letters of the alphabet were necessary in grammar in order to be able to preserve what had been said, so music now needed a transcription technique in order to preserve musical compositions made up of different concordant voices. At this point, then, the observation that both language and music use a limited number of constituent elements was taken up from a new perspective again. It was also Johannes of Grocheo who pointed out that just as a grammarian can represent any utterance on the basis of a few letters of the alphabet by putting them in the right position and conjoining them, so a musician can represent any measured song on the basis of just three symbols.

In accordance with the transcription system already in use for the chant, measured music also makes a distinction between signs which represent single notes and signs which represent notes grouped together in ligatures. A sign which represented a single note was called by Franco of Cologne (fl. 1260–80; cf. Reaney 1974) *figura simplex* and a sign which stood for several notes *figura composita*. Once again these terms were taken from grammar in which they referred to simple and composite words.

Apart from the recourse to old analogies and the traditional use of terminology common to both music and grammar, it was the

Table 54.2: The notes with their values used in the emerging notation of polyphonic music

NOTES

inequilatera / equilatera	 / 	maxima / longa
equilatera caudata / equilatera incaudata	 / 	longa / brevis
rectiangula / octusangula	 / 	brevis / semibrevis
octusangula incaudata / octusangula caudata	 / 	semibrevis / minima

LIGATURES

	ascending	descending	
cum proprietate et cum perfectione			brevis longa
sine proprietate cum perfectione			longa longa
cum proprietate sine perfectione			brevis brevis
sine proprietate et sine perfectione			longa brevis

study of the modes of meaning of verbal language (*modi significandi*; cf. Art. 52 § 3.–5.) in the medieval universities that enabled the theoreticians of music to formulate genuine semiotics of measured music. This resulted in a sign theory which distinguished between the two aspects of the signifier and the signified. According to Johannes of Muris (ca. 1300–1350; cf. Michels 1972), the Parisian mathematician, astronomer and musician, the written note is the signifier and the sound is the signified. The one belongs to the other and their combination forms a unity which is called a musical note. In this approach, the musical note can be defined as a quadrilateral shape signifying by convention a rhythmical sound measured in time.

The fact that the system of musical notation is not naturally given but is rather established by man according to conventions was further elaborated by Jacobus of Liège (ca. 1260–after 1330; cf. Bragard 1955–68), who studied at the University of Paris. Commenting on Muris’ definition of signs as conventional, he pointed out that this is true both before the imposition of meaning and at the moment of imposition, but not afterwards: once the connection is established, in fact, the signs become enchainé within the confines of the system. Continuing his description, Johannes of Muris made it clear also that the note includes two forms: the quadrilateral shape, which is primary, and the meaning, which is secondary. The analogy with verbal language is here used to emphasize the fact

that what really counts in music are the sound signifieds of the composition and not the graphic signifiers of the notation. In language, words alone do not depend grammatically on one another, nor do they create a discourse structure; this is rather done through the relations between their *modi significandi*. Similarly, no musical relation exists between different shapes, musical harmony is rather created by the relation between sounds.

Elaborating on this fundamental distinction between graphic signifier and acoustic signified, the mathematician, astronomer and musician Prosdócimo of Beldemandis (ca. 1370–1428; cf. Gallo 1966) in Padua made an explicit reference to medical semiotics (cf. Art. 45 and 56 § 2.), asserting that just as urine cannot properly be defined as healthy or sick inasmuch as it is not an element which leads to sickness but is rather only a sign of health or sickness, revealing the health or sickness of the body producing it, so a note cannot properly be said to have a particular value, nor can a note properly be said to be perfect or imperfect or altered inasmuch as a note is nothing but a corporeal object drawn on the page, with no real value in itself. More correctly, the note can be said to be the sign of a particular value, the sign of perfection or imperfection, revealing for us the length of time we must lengthen or shorten the emission of a sound.

The functioning of the system is based on the correlation, according to binary opposi-

tions, between a series of graphic symbols, mostly geometric figures, and a series of lengths of time of sound or pause having a specific relative value (cf. Table 54.2).

The connection between graphic signifier and acoustic signified is established by means of a series of rules set down in the theoretical treatises of the time. This set of rules functions as a code which on the one hand allows the different lengths of sounds and pauses to be transferred to the written page, in order to preserve the musical composition, and on the other hand allows the different lengths of sounds to be deciphered on the written page for carrying out a musical performance. Already then, it was obvious that the notation could be carried out in different ways according to the code used for the performance. This was perfectly clear to Johannes of Grocheo when he pointed out that the meanings of symbols of notation are assigned in different ways, and that a person who can sing and read a song according to some people cannot do so according to others. These differences will be evident to anyone who looks at what is said in the various musical treatises.

The system of signs rather summarily described here, which came into being around the end of the thirteenth century and the beginning of the fourteenth century, remained in use until the end of the fifteenth century, undergoing transformations, as with all communicative systems, by means of analogic procedures (Gallo 1973: 46–48) and criteria of economy and functionality (Gallo 1984: 42–43). With only small modifications both of the graphic signifiers and the acoustic signifieds, it then became the system of notation familiar to us today (cf. Art. 68 and 81).

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