The Music of Meaning

The Music of Meaning:

Essays in Cognitive Semiotics

By
Per Aage Brandt
with Line Brandt, Ulf Cronquist,
Peter Hanenberg and Austin Bennett

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PREFACE

The twenty-four essays gathered here as chapters of a rather heterogeneous volume under the heading *The Music of Meaning* represent a voice in the chorus of contemporary Humanities presenting itself as that of cognitive semiotics. It considers the human world of things and signs spanning from the global society to the singular minds of its inhabitants to be constituted by something called meaning. Meaning, as I understand it, is what happens to causality when it passes through the mental and potentially conscious part of the human brain, appears as 'something to consider' and then gives rise to feeling, thinking, and thoughtful or emotional communication. The first such passage may have been that of what we call music. The perceived and experienced returns as expressed, the heard part returns as played, then the seen part returns as image, and the heard and the seen at last unite in the sound-to-concept words and sentences of language.

The eight sections of the book are areas of study that correspond to my main interests in semiotics and cognitive science: music, poetics, art, enunciation, blending, linguistics, signs, and society. They often overlap, but there are of course specific phenomena and structures in each of them which call for singular attention and require the elaboration of models that are *sui generis*. The result is a panorama displaying forms, and in particular dynamic schemas, of meaning and characterizing an approach to research that stays open to the diversity, and even to the possible contradictions, that may emerge and may problematize the unity of a theory. A cognitively oriented semiotic study of meaning is, I admit, based on the constitutive 'theory' that meaning is a potentially shared immaterial reality, namely that of cognition, and that this reality connects to the material reality of semiosis, or expressive behavior. But this minimal ontology stays compatible with a methodological openness that may often make the endeavor look more like a philosophy than like a scientific or scholarly discipline. The ontology unites what methodologies may separate. In a sense, the study of meaning is nothing like other fields of study; it is academic but without an academy, rather systematic but without stable institutions. Its graphic displays could even inscribe it in the field of conceptual art. However, the elementary curiosity that drives it is epistemic — a quest for knowledge about the 'substance' of humanity, behind the meaning *of* this and that: meaning as such. *Humanitas et universitas*, as the linguist Louis Hjelmslev famously claimed in the last line of his Prolegomena.

I am grateful to the beautiful persons who have been my partners in the long process of research behind this volume, especially to my co-authors: Line Brandt, Ulf Cronquist, Peter Hanenberg, and Austin Bennett, but also to the many other wonderful persons, students, colleagues, friends, that have inspired and directly or indirectly caused these texts to exist.

I am deeply grateful to my wife Maryse Laffitte for — in the French sense of both 'buttress' and 'endure' — supporting and so long having supported my passion for these strange and ubiquitous matters.

SECTION ONE:

MUSIC

CHAPTER ONE

MUSIC AND HOW WE BECAME HUMAN

Summary

Human semiotics may be grounded in the phenomenology of musical experience as performance and perception, in the framework of emotional and spiritual practices. The linguistic unfolding of expression may be built on this ground; poetry precedes prose, as music precedes language in the semiotic evolution of our species.

Introduction

On the evidence from palaeontology, our species, *Homo sapiens*, was biologically stable and physiologically modern 160,000 years ago (Stringer 2003). When glaciation stopped 150,000 years later, agriculture, writing, and history emerged—cultural life based on a symbolically represented shared past. Somewhere in the middle of this long period, perhaps about 50,000 years ago, humans apparently began to “make sense” together—to symbolize, paint, speak, and form kinship systems that held communities together—and, according to the scenario I propose, perhaps first made music. It is commonly estimated that in the Upper Palaeolithic (40,000–10,000 years ago, during the Würm glaciation), humans equipped with Aurignacian culture technology and cooking by fire began to paint in caves, to dance, and to make musical sounds; they may have chosen pitches, rhythms and melodic forms by beating on resonant objects, blowing in hollowed objects, and striking stalactites to create pitched sounds (*Encyclopedia universalis* (1985 sq.), Paléolithique, Préhistoire).[1]

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[1] Beaune (1995: 220-225) mentions the flutes found in Aurignacian and later caves (Isturitz) and the staglagmite indentations in caves such as Pech-Merle, Portel, Clastres, suggesting the use of these formations as petrophones; acoustic analyses have shown the good resonance in caves such as Niaux, Fontanet, and Portel,

There are several ways to arrive at the hypothesis that musical practice preceded the symbolic, or intentionally semiotic, message-signalling practices of modern humans. In the next section, I present arguments for this hypothesis.

Facing Death and Danger

Memory-based feelings—such as those related to the collective commemoration of the dead, to ritual forms of imaginary communication with remembered persons, and hence the cult of ancestors, belief in their existence as spirits and ghosts, and experiences implied in the convocation of these spirits—are probably ancestors of modern "gods". Especially in situations of collective crisis, such immaterial beings are called on through ceremonial performances—activating the genres of human sensitivity and activity that we now call religious. These events are, in all known cultural communities, linked to musical performances.

Singing, the articulation of the human voice into stable tones and intervals, links the emotions of the breath with the rhythm of body movement. The "discretization" that transforms an original *glissando* into a series of distinct tonal steps is crucial to the change from shouting to chanting and singing. The shared experience of articulate singing and of the song-imitating sounds of melodic and rhythmic instruments universally affects our embodied minds by creating "non-pragmatic states", i.e., states of nonfunctionality—of contemplation, exaltation or even trance—that are typically expected and presupposed in situations of sacredness: celebration, commemoration and invocation.

Collective musical practices also form the aesthetic framing of many trivially pragmatic (work-related) forms of negotiation and cooperation, such as the institutional genres of functional verbal communication; these can still entail occasional hymnic singing, performative chanting, ceremonial choreography and gestural control (as, for example, in conveying politeness). School assemblies, parades, even contemporary TV news programmes, are examples of quasipragmatic uses of music or musicality used to consolidate feelings of community, to placate social fears and to confirm security.

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especially in the areas where parietal figurations appear. She notes however that such uses remain difficult to prove. For a broader evolutionary context, see Wallin (2001).

Traces of Music in Language

In all known languages, regular intonation patterns connect lexical items and syntactic constructions. Linguistic expressivity includes and integrates levels of “musical” phrasing, from syllabic quantity, stress and tone, to clause melodies and syntactic emphasis, and from there to global intonational profiles marking utterance modes and discourse genres (such as “narrative” versus “argumentative”, “exhortative”, “imperative”). In modern phonetics, it is accepted that intonation profiles universally distinguish imperative, interrogative, affirmative, and affective modes of utterance meaning.[2] Dialogical rhythms of turn-taking and attunement to emotionally determined styles of legato, staccato and rubato phrasing in different tempi are important for the proper use of language in conversation and in the performance of speech acts.

These constitutive “suprasegmental” structures or dynamic features may be a residue of antecedent and still-active underlying forms of musical expressivity, although it is of course impossible to find conclusive evidence for this hypothesis from a lost past. Clause embedding (such as the insertion of completive, relative and adverbial phrases in a matrix sentence) is freely phraseable in oral expression by changes in tone and tempo: in ordinary speech, we spontaneously “sing” the overall structure of our grammatical sentences in accordance with the intersubjective circumstances and our purpose. Remarkably, there is no well-established theory of the origin of this phenomenon. Nevertheless, we need only pay attention to the role of playful singing and rhyming in infant and toddler language-acquisition, from early babbling up to the multiclause stage, to provide a strong demonstration of the formative force of expressive musicality (Powers and Trevarthen, Chapter 10, in *Communicative Musicality,* 2009).

Language into Music

The transformation of sentences into verses occurs universally and is always understood as a specific poetic device. Poetry exists in all known cultures as an aesthetic genre of oral expression, in which the text is framed by some sense of music: poetry is chanted, sung or solemnly recited, often to a background of accompanying music. Even when the music seems to vanish into a silent metric pattern, leaving the pattern of the 'feet' of unaccompanied verse as a formal framework for the poetic genre of signification (e.g., in the academic poetry of the past five centuries of Western culture), this rhythmic framing or integration remains phenomenologically constitutive of the poetic. In poetry, language and music are made one by a surprisingly smooth mapping from the former to the latter. If language already 'contains' and builds on musical phrasing and musical time, this transposition is easier to explain (Turner and Pöppel 1999; Miall and Dissanayake 2003).

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[2] See for example Bolinger (1983).

Language is a distinct activity of the socialized human mind. It acquires a triple compositionality of its own—phonetic, syntactic and semantic components in the structure of language enable us to think and share ideas of absent, past, distant things. We do not currently know in detail how our mental and neural architecture has shaped the relation of language to music (but see Turner and Ioannides, Chapter 8, *Comm. Mus.).* We do not yet know if music and language evolved independently, or if language could have evolved without music. Nevertheless, it remains a plausible hypothesis that language emerged “embedded” in music, implying that poetry preceded prose (Cross and Moreley, Chapter 5, *Comm. Mus.).*

To our counterfactual imagination, it appears that if these two semi-automatic communication systems, language and music, had been and stayed mutually unconnected, they would both be reduced to functional signalling systems little different from those of many animals, with limited referential or explicit narrative power. I believe there is something in music, or musicality, that language structurally needs in order to be symbolic (in the technical sense); that is, language needs musicality to be able to intentionally refer to states of affairs outside the deictic ‘here and now’ of persons in communication. This ‘something’ includes in particular the invocational effect of rhythm in expressive movement.

The following sections present more specific ideas on the role of music in the constituting of humans as a “symbolic species” (Deacon 1997).

An Indispensable Emotional Background to Naming Identities

There is overwhelming evidence of a fundamental, stable and primordial connection between music and feelings and, in particular, emotional states related to the inter-human affective state we call love. Linguistico-musical compositions in the world literature of scores and the texts of songs, lieder, hymns, dramatic works, ballads, operas, that is, language-related musical creations, generally show a constant semantic preference for this affective category as a thematic focus. Poetry in world literature is predominantly 'about' this particular theme and the affective state of love.

Such a semantic binding to a specific preferential domain of content calls for semiotic reflection. What is being signalled in love songs everywhere? There must be a very strong connection between this realm of affective states between persons and 'musicality'. My rather unromantic suggestion follows.

Once the technology of tools and weapons allowed our species to extend its respective territories of operation, namely male long-distance hunting and female short distance roaming, and especially fishing, something like what we call 'couples', or adult parenthood partners, must have endured longer periods of separation. Fishing and local foraging allow more sedentary living habits and thus favour stationary nursing. The fine motor digital skills of females, manifested in the production of adornments and fishing tools, could also have been developed during the same period of early symbolic constitution (Cleyet-Merle 1990). The human concept of parenthood, family relations and stable partnership—the notion of a 'loving couple'—presupposes a capacity to recall and recognize the '(significant) other', to identify the beloved's face and person and, eventually, to associate these permanently with a given proper name.

Names, in this sense, are not generally used for referring to trivial artefacts or objects and animals, but primarily to persons, and hence to personal belongings and territories. Proper names and common nouns are linguistically and semiotically distinct. Nouns pertain to the natural mental process of categorization, whereas proper names are grounded in speech acts and possessive intersubjective relations—to interpersonal ties. However, proper names have additional, absolutely decisive semiotic qualities. They make it possible to designate the numerical identity of one particular individual, and thus to signify the singularity of a given individual entity, not just the qualitative or useful properties of that entity—precisely what we do when naming persons. The significance of the philosophical distinction between numerical and qualitative identity is not commonly understood in contemporary “materialistic” culture. 'Sameness' refers either to an individual's continuous existence through time (staying the same) or to a property shared by several individuals (that are 'like' one another). I am 'me' by numerical identity, and I am a certain sort of person by qualitative identity. This account leaves unattended the special affective and intermental relations between persons.

Whether the entity is a person or not, once the principle of naming is installed, the signified singularity of an item makes it possible to 'cognize' it as an abstract ontological entity, a 'countable' being, perceived with a numerical (i.e., radically individual) self-identity. The named entity is stable through time, precisely like a 'love for a lifetime' addressing the (same) 'one and only' person. This emotional binding to 'oneness' is a cognitive capacity that appears to be only vaguely present in other species, and one that humans in certain psychopathological states can lose.[3]

Nostalgic songs expressing a longing for an absent beloved person appear common to all texted music. The name of the beloved is a quasi-obligatory part of such songs. A contemporary jazz songbook will include such songs as "I loves you Porgy", "Dindi", "Stella by Starlight", "Michelle", "My Funny Valentine" and "Sweet Lorraine". Grieving songs recalling deceased loved persons generally follow the same pattern, and just as vividly evoke the spiritual presence of the person thus designated. Names are small phonetic songs in themselves, and the melody of a name-song can identify a person (a thematic principle exploited in opera and cinema). When we vocally call on each other at a distance, the melodic aspect of the sound sequence is particularly efficient. Something like the note series C-A-A-F might often be heard as the melody for calling "Se-bas-ti-an", with reduced versions such as A-A-F for "Jo-na-than", and just A-F for "John-ny" (see also Rainey and Larsen 2002).

The point here is that proper names should be understood from the point of view of the 'musicality of personhood': these nominal entities are arbitrary, emphatically conventional, symbolic signs established by performative rituals, and basically 'mean' or refer to the affect (love) that first made an individual into a person, a subject inscribed in kinship relations and recognized as a singular and personalized being. Names are, of course, intimately related to parental feelings, to the procedures of 'giving' names, analogous to the idea of 'giving' life, and especially to the existence of a universal practice of voiced interaction between infant and parents, and thus, 'giving' language (Trevarthen and Malloch, 2002; Dissanayake, Chapter 2, *Comm. Mus.).* Similarly, we find animals carrying a proper name more difficult to eat than anonymous creatures. Their name makes them a 'person'. However, this love-borne 'nominalism' and personalized orientation in music and poetry, by which music inherently seems to 'think about' love for someone (and the love that seems to 'think about' music for them), needs in its turn a grounding in additional semiotic factors and circumstances of communication, such as those we will consider in the following sections.

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[3] Capgra’s syndrome in paranoid schizophrenia (Huang, Liu, Yang, 1999) is a central example; milder forms are common in cases of paranoia in love relations (jealousy may in fact be the most frequent manifestation of all).

Homunculus in the Artistic and Musical Sign

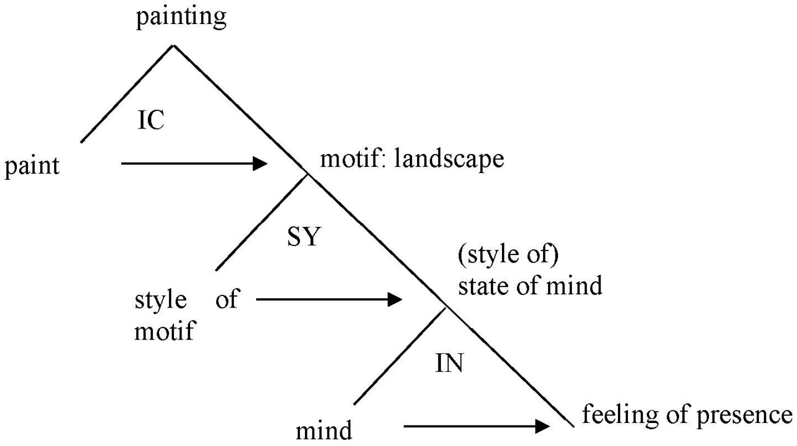
The global musical sign constitutes in itself, in the motivation behind it, an important prerequisite for its emotional use. Let me explain this semiotic phenomenon after first presenting what is perhaps a more familiar pictorial analogy.

A painting, for example a landscape, offers first an iconic (pictorial) relation between a canvas framing a complex multitude of graphic and chromatic events appearing on the painted surface, and a framed view of the 'depicted' landscape, as seen from a window, or from another limited vantage point. The landscape in question may be a real place whose name appears in the title of the painting—a representation of an existing geographic locality—or it may be a pure invention by the painter. To the observer, it shows a fragment of a particular kind of possible 'world'. It offers a supposedly intentional glimpse into this 'world' in such a way that the properties of the glimpse illustrate the general character of the whole it refers to. That is, the part symbolizes an underlying, more general whole: it 'stands for' the place.

Thus, the initial icon gives rise to an intentional act of symbolization, and the landscape painting is now a symbol of a character, style or atmosphere, or a state of mind, in a spatial habitat. Since the painting in front of us addresses our attention without further specification, we 'read' it as an unspecified, existential deictic sign: a human mind was *there* and as a materialized symbolizer is still *here* with us *now*, through the presence of his or her work, showing us the place. Symbolization always yields the metonymic presence of the symbolizer. Inversely, it may be true to say that the semiotics of metonymy always involves or 'stands for' an act of symbolization of some sort.

A painting may thus be represented as a cascade of sign functions, IC (icon) → SY (symbol) → IN (index), where the initial percept, its icon, is again a sign or symbol whose content is yet a third sign, the index, that contains the presence of the “ghost” (spirit) of the artist (Figure 3.1).

Figure 1.1 The cascade of sign functions for a painting: icon (IC), symbol (SY) and index (IN)

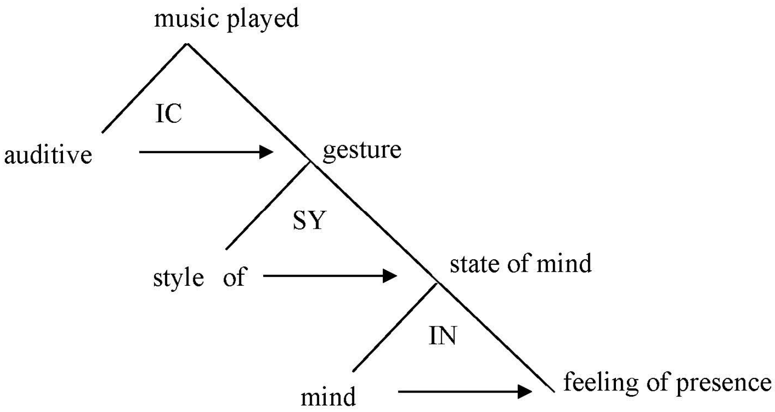


This tripartite sign produced by a musical performance or experience can be compared to what happens in the transformations of pictorial iconicity.

1) The rhythmic and melodic gesture will suggest a body making that gesture. In this sense, the auditive form, as an icon, means (signifies) the bodily gesture, even if the movement is not actually shown, but only 'played' and heard in musical sound.
2) The idea of bodily gesturing in the sound will be a symbol; it will mean and signify a person in a corresponding state of mind and emotive movement.
3) Since this very abstract affective meaning, or symbolic content of the iconic sign, occurs at the very moment of hearing the music, it will ultimately, as a deictic sign, yield to those who are sharing the musical experience a feeling of the presence of the 'ghost' or 'spirit' or 'avatar' (or whatever we might call it) of that musician.

Thus, in the case of a musical event, there would be a corresponding sign cascade (Figure 1.2).

Figure 1.2 The cascade of sign functions for a musical event: icon (IC), symbol (SY) and index (IN)



The cascade format of semiotic meaning in process is clear in these and related cases of art. However, the semiotic cascade may also be cognitively active in other forms of communication by explicitly expressive signs, whether arbitrarily coded or not—such as facial expressions, theatrical gestures of politeness, pragmatic signposts, signboards. The particular interest that humans take in the artistic cascade, however, is undoubtedly due to the forceful feeling created by a particularly elaborate iconic stance in art, by which the symbolic function is built into the content of the icon and therefore made immanent and disembodied, so that the symbolized emotional state of mind does not carry the signature of the performer but will instead remain an immanent semantic property of the artistic piece of work. The participants will be able to feel, sense or accept the emotion of the state of mind in question without 'being in it'. The subject of the mind whose presence is felt by the participants is what I propose to call a 'homunculus', an imaginary persona or 'virtual other' experienced as immanent in the work of art. When art is associated with cultural, institutional and discursive practices of different kinds, including religion, the authority of a voice experienced as emanating from an artistic expression will then be associated with the abstract homunculus—whose disembodied status will endow it with a particular symbolic force, perhaps accounting for the dynamic effect that we call 'sacredness'.

In the evolution of cultural practices, I claim that the necessary presence, at first, of such authority-yielding symbolic forces—especially in the execution of performative acts and rituals—stems from the semiotic homunculus. Music generates sacredness. Furthermore, it is probable that visual cascades appear in evolution subsequent to auditory cascades. It is possible to derive the symbolic meaning from the iconic content only to the extent that different modes of representation can be perceived as 'styles' or graphically manifested expressive gestures (responsible for strokes, colours, contours and light) characterizing variable mental 'styles' or perceptive modes of seeing. By contrast, musical rhythms (corresponding to strokes), soundings (colours), and melodic phrasing (contours) directly inform our bodies of the way to dance in order to unfold their meaning; we immediately grasp the state of their 'homuncular' 'out of body' mental being, or 'spirit'. Meaning, as distinct from the fact of someone who 'means' something by saying it or playing it, is homuncular. It transcends its performer (see Chapter 5 by Cross and Moreley, *Comm. Mus.,* on 'floating intentionality').

In so far as this privilege of auditory imagery has always been a property of our motor-based perception of temporal events, music may have guided other expressive modalities and eventually language; the voice heard in different forms of enunciation (such as irony, bathos, imperatives and interrogatives) is indirectly, theatrically, linked to the speaker, and directly related to this homuncular symbolic force. Implicit narrators in fiction and humour, impersonal bureaucratic formulaicity and juridical textuality all rely on homuncular enunciation. The law 'speaks', or rather chants, and we can sympathize with this authoritative voice or mock it by letting it sound like good or bad music.

There is a structured process in the architecture of the human mind that 'does' semiotic cascades and the expressive body codings associated with them, and that represents the virtual, homuncular other in relation to the Ego (the Self of which the subject is aware). Let me briefly and speculatively outline the general semiotic view that underlies this line of thinking about cognitive aesthetics and musicology.

Mental Architecture and the Communicative Role of Music

The human mind organizes knowledge about the spatial and temporal world, including, most intimately, the body that hosts it. Just as importantly, it organizes the functional and expressive acts of its individual host as an embodied person in society, namely in a society of persons sharing significant homunculi, and being 'moved' by them, while sharing imagery and music. Thus, we 'perceive' and also 'perform'. To account for this double perspective of our subjectivity in theoretical or philosophical terms is highly complicated; current research is far from having an elaborate model at its disposal for orienting the required technical and empirical investigations. Nevertheless, there are certain elementary principles that have begun to emerge, allowing us to form an initial, minimally ordered view of what the mental brain is doing. Two dimensions must be distinguished:

1) a 'vertical' dimension in which afferent integration builds up content from 'input', and efferent integration builds up our agentive programmes as 'output'. In this sense, borrowing terms from neuroscience, we could speak of afferent cognition and efferent cognition: experience and intention. (“Afferent” means bearing or conducting inwards; in neurology, conveying impulses toward the central nervous system. “Efferent” means conducting outward from an organ; conveying impulses to an effector).

2) A 'horizontal' dimension, in which different levels of mental work are articulated, both separated and connected in function.

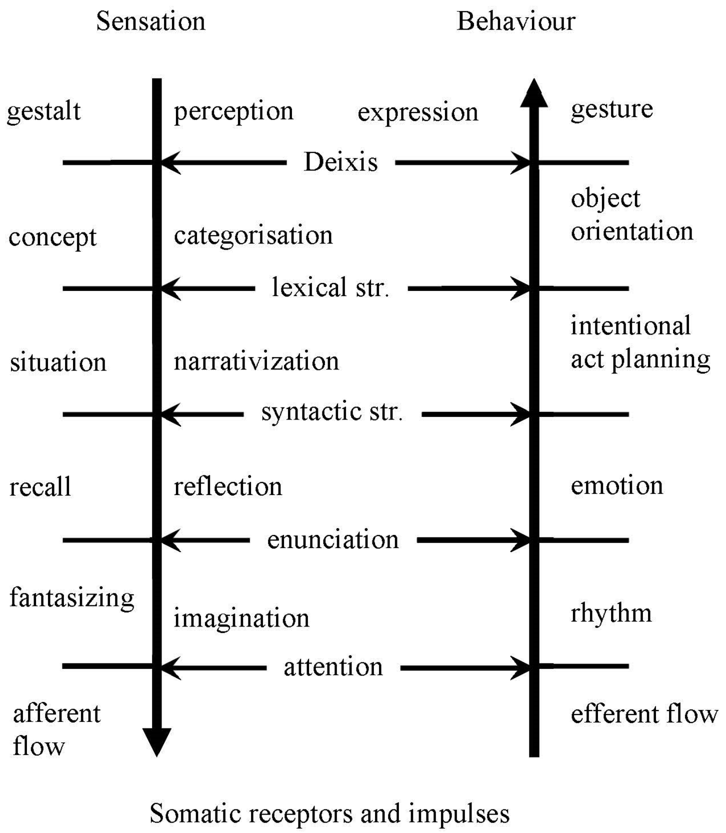
    a) In afferent cognition, five superimposed levels of distinct and relatively independent conscious meaning production, as a minimum, appear to be operating in parallel: (i) perception, which precedes (ii) categorization and conceptual categories, which precede situational scenario formation, also called (iii) narrative cognition; (iv) comparative and reflective recall, which constitute a fourth, notional level of consciousness, and (v) an ultimate level of free-floating imagination and such phenomena as 'off-line' representations, ideas and daydreams, related to affects. In this order, each level presupposes systematic access to the products of the preceding level.

    b) Efferent cognition, the last level of the outward oriented process, shapes our bodily actions in the surroundings we perceive. It must be closely related to the first level of the afferent process by some sort of bridge, creating a shared level, since specific sensory perceptions (gestalts) can directly and spontaneously trigger or confirm certain gestures and reflexes. These are typically deictical moves by which we apply volition, positive or negative, to what we sense, in order to better perceive it as the prospect that we had when we acted in that

> way. Behind this level of deixis and volition, or underlying it, afferent categorization must be connected to efferent object-oriented motor routines by a second bridge; the bridge on this second level, between afference and efference, may therefore be related to lexical structure in language. On a still deeper level, efference prepares sequences of acts that express superordinate intentional meanings, connected to afferent situational understanding by a narrative organizer or 'planner' of temporal experiences (related to semio-syntactic structure in language). Underlying this level, our semiotic body finds its affective tonus (emotional attitude), by which it reflexively supports our ongoing acts and action sequences; this emotional attitude could be connected to the variations of enunciation in language. Afferent imagination is matched by efferent pulses of rhythm; pure rhythmic attention, stepping into the expected experience of intended acts, may be the afferent–efferent bridge. This might seem a strange claim, but we may think of imagination as creating expectant states of impatience, and rhythm, including tapping by the fingers and feet, as connected phenomena; or we may think of the way in which depressive or ecstatic phantasizing (imaginary thinking) affects the tempo of our iterative routines. This last connection between imagination and rhythm must interconnect 'off-line' representational awareness and 'on-line' presence-oriented awareness on a bridge of what philosophers might want to call a pure phenomenological consciousness (here just called 'attention').

The hypothetical model of our mental architecture is represented in Figure 1.3.

Figure 1.3 Hypothetical model of our human mental architecture


Sensation
Behaviour
gestalt
perception
expression
gesture
Deixis
concept
categorisation
object orientation
lexical str.
situation
narrativization
intentional act planning
syntactic str.
recall
reflection
emotion
enunciation
fantasizing
imagination
rhythm
attention
afferent flow
efferent flow
Somatic receptors and impulses

The phenomena that semioticians and philosophers refer to as Forms of Meaning are mental contents neither belonging to the afferent nor to the efferent line exclusively, but which may freely 'float' from side to side, precisely as the forms of structure characterizing language. Linguistic structures seem valid as principles of organization in both directions, since we listen and speak through the same grammatical forms. Only in foreign language acquisition (and in early childhood) do we observe a significant difference in afferent and efferent competence. We are, incidentally, normally better at reading (hearing) than at writing (speaking) a foreign language (and toddlers understand, frighteningly, more than they can say!). This difference is probably due to the role of consciousness of others’ actions and expressions in language learning; for many reasons, it is easier to attend to reception (afferent content) than to production (efferent content) if one is oriented to the reception of a message intended by someone. Other individuals are apparently more salient in the afferent than in the efferent line of processing.

If the architectural hypothesis presented here is solid, then music is essentially both a matter of auditory perception and of deep, abstract ideation, an ideation that originates with the impulse to move, i.e., with action. Whereas auditory events (noises and environmental sounds) are generally perceived to be integrated into multimodal clusters of objectal concepts—since 'things' yield multimodal sensations—musical sounds are perceived as tones, which have rhythmic meaning as beats. We need to ask what the particular principle underlying this truly strange fact could be. Of course, the 'strange fact' is comparable to what happens in visual art and pictorial and graphic iconism in general: the visual mode is kept separate from other possible sensory gestalts offered by the source of perception; otherwise there would be no 'image'. The auditory percept is thus carried through all standard instances—categorization, narrativization, reflection and imagination—without being absorbed by contextual meaning and is then interpreted as an event manifesting the spiritual presence of some being.

We may explain this symbolico-aesthetic miracle simply by stressing that musical sound is perceived as an intentional gesture, i.e., as a 'symptom' of someone moving in a particular expressive way. Since it is immediately understood as an intentional expression, attention is drawn toward the category: Other Person’s Conscious Doing. Since musical sounds are knowingly produced, the actual Other Person playing is conceived of as particularly self-conscious, so that there are inherently three intentional processes occurring at the same time: a listener’s conscious attending, a player’s conscious attending to what is played, and the shared consciousness invested in the music that the player attends to while playing it. This last intentional instance is precisely what the listener foregrounds. It is not the player’s autocontrolling (the technique), but the musical flow that the player intends to control, and that is thus objectified during its production as an autonomous instance: the *meaning* of what is played.

This rather tricky phenomenological analysis may be fundamental to the general understanding of our topic, so I will rephrase it a couple of times. To play or paint something (instead of just performing intransitively) is to embody and inhabit this something and to experience it as a pre-existing efference that the actual efference emulates or reactivates.

It is very particularly this pre-existing 'intentionality' that the musical or pictorial experiencers focus on, beyond the performer's own efference. The triple subjectivity generically built into the process stems from the performer's normative project. Since the performer creates 'something', and thereby could either fail or succeed to give birth to it, the meaning immanent in the 'something' is saved by the performance; the feeling of a precarious, fragile, transcendent intentionality quite naturally accompanies the aesthetic display.

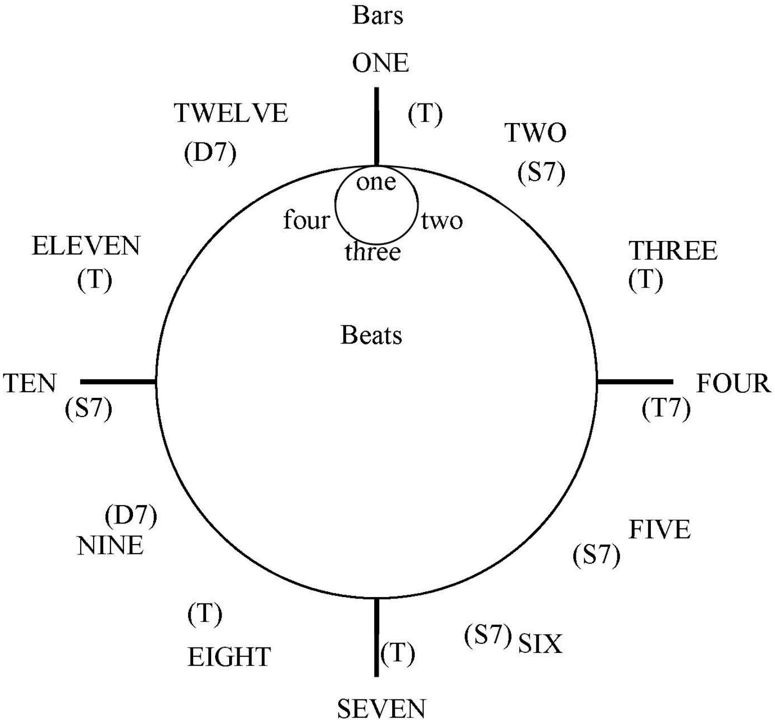
Thus, every act of symbolization is a normative performance project and entails the feeling of transcendence, which is more directly and clearly present in the musical here-and-now experience than in any other circumstance. Symbolization may thus be derived from the primordial musical practice of humans.

There is still, however, a constitutive aspect of symbolicity that needs to be elucidated: how did we manage to isolate symbols as discrete single signifiers and then to conceive of their combinations as formulaic sequences? Where could this 'discretization' and this idea of 'concatenation' have entered human cognition? Again, music may have been a structural source of these formal cognitive inventions, as I will briefly try to show in the following, concluding section.

Names and Numbers: from Metric and Rhythmic Time to Calendar Time

In most music, the rhythmic organization in which instrumentalists, singers and dancers anchor their performing consists of finite temporal units that can be described as recursive bars (measures) comprising a short sequence of regular pulses, or beats. These bars form a shared reference for the performers and allow them to synchronize their expressions (see Lee and Schogler, Chapter 6, *Comm. Mus.).* The finiteness of the bar makes it possible to conceptualize a temporal flow as a highly structured recursive process of nested metric cycles. The encompassing multi-bar units are normally related to melodic wholes, and there are further compositional, multi-melodic wholes, united or separated by specific scales and harmonic preferences (see Osborne, Chapter 25, *Comm. Mus.,* on chronobiology). For the sake of demonstration, Figure 1.4 shows a 12-bar blues chord schema.

Figure 1.4 Representation of a standard blues chorus. Bar numbers are shown by the upper-case spelt-out numbers around the outside of the circle; beat numbers in each bar are represented by the lower-case spelt-out numbers surrounding the small circle at bar ONE. T = tonic chord; D = dominant chord; S = subdominant chord; *X7* indicates the addition of the chord's seventh.



Such a construction is only possible because the beats of the bars are numbered (named), so that a musician can count "one-two-three-four, two-two-three-four, three-two-three-four, …", the first "one" referring both to the beat and to the bar—a double presenthood, so to speak. This is already in itself a numerical system: it is tetradic, comparable to the decimal or the binary systems, and the possibility of identifying a unit by at least two recursive parameters is what makes the unit as symbolic as a person's name, including first and family names. Once we are able to name a beat, within a closed list of possible names, we can conceptualize the temporal moment as a 'place' in time: a recurrent place as something to return to, something immaterial that is still there 'as time goes by'; different persons' presence in the future can coincide or significantly not coincide. Planification becomes possible, or intuitive motor planning is realised. The calendar is born.

The elementary miracle is that the place will be there whether or not someone pays it a visit: the beat, and equally the bar, exist even if they are empty; silent! An empty (unmarked, unplayed) beat is an auditory event that we do not hear; it is an acoustic 'ghost', one could say. It exists plainly and numerically, and I contend that this is how plain natural numbers might have come into existence: as beats to fill or leave unfilled. A named beat is a numerator with an unfilled, pronominal denominator. The embodied origin of mathematics might thus be the nested cyclicity of musical rhythm.

We note that Lakoff and Nunez (2000, p. 52) prefer to believe that numbers are grounded in “subitizing” object groups with our fingers. Perhaps, numbers could rather originate from “stepping out” the base of a building or the space for a game or dance. Fingers or feet? There may be many possibities, but all will depend on a sense of time and nested rhythms, in making all kinds of moves, step by step in groups. Music may have brought this feature of animal movement into systematic human consciousness.

The metric underpinning of poetic rhythm—beyond the quibble of feet, tones, accents and quantity in culturally distinct poetics —is exactly the same beat-based temporal cognition. Here is a stanza by Robert Burns (from *On Mary, Queen of Scots*, written in 1791; in Noble and Hogg 2001):

> O! Soon, to me, may Summer suns
> Nae mair light up the morn!
> Nae mair, to me, the Autumn winds
> Wave o’er the yellow corn!
> And in the narrow house o’ death
> Let Winter round me rave;
> And the next flow’rs, that deck the Spring,
> Bloom on my peaceful grave!

Four beats organize each verse as a bar:

```
 1          2           3          4
O! Soon,   to me, may Summer suns
Nae mair light up  the morn! —[4]
```

Note the empty fourth beat [4] in line 2. The syntactic accentuation at the close would oppose the realization of these rhythmic beats by strongly stressed syllables:

And **the** next **flow**’rs ...
Bloom **on** my ...

Here, the linguistically unaccentuated morphemes would be grotesquely overstressed if their stress were to follow the four-beat rhythm; instead, they are to be pronounced in a slightly slower tempo and with an artificially equalized half-stressed weight, a counter-accentual solution that yields a perceptible poetic effect.

Let me present one more example, a famous Japanese *haiku* by Matsuo Bashô (1644–1694):

Furu ike ya	[an old pond and]
Kawazu tobikomu	[a frog jumps]
Mizu no oto	[water’s sound]

(Note: In Stryk and Ikemoto (1977, p. 91), the translation is as follows: Old pond, / leap-splash—/a frog. See also: http://www.teeweg.de/de/literatur/basho/furuikeya.htm)

The verses of a haiku have 5 + 7 + 5 syllables. The stressed voicing of these lines, however, imposes a four-beat measure:

1 2 3 4
Furu **i**ke **ya** [4]
Kawa**zu** to**bi**ko**mu**
Mizu **no** ot**o** [4]

The result is that the final void [4]—the empty beat following “oto”—becomes the temporal place of the splashing beat. A poetic trick consisting in animating the void, or rather semanticizing the 'pure' temporal slot.

We know that music has always been associated, transculturally, with the hours of the day and the night; in fact, the notion of hour and day is due to the same nested cyclicity as the musical metric itself. The names of hours are mostly numerical, and this is often also the case for days (e.g., Portuguese weekdays: *segunda-feira*, *terça-feira*, *quarta-feira*, *quinta-feira*, *sexta-feira*). Sociocultural conceptualizations of time are isomorphic with time’s musical form of schematization. It is evident that calendars, using names of divine entities as 'numbers', are built out of exactly the same symbolic substance. I conclude that symbolization is likely to spring from temporal cognition, and that temporal cognition serves the 'time in the mind' that gives music its rhythms.

A Last Remark and Concluding Thoughts

Let me add a last remark on tones. The discretization of tonal sounds, already specified as tones, not noises, by their formants (overtones), and the melodic combination of tones of different pitch, as produced by musical instruments perceived as analogous to the vocalizing human voice, probably occurred when they were connected to beats. Beats are naturally and universally discrete. A tone manifesting a beat calls for subsequent tones representing other beats of the same cycle or multicycle (cf. the blues cogwheel in Figure 1.4). Thus, the length of the tone comes to refer to the beats of the bar as a metric, quantitative scale; because there is no cognitive continuity or gradual transition from one beat to the next, the tonal signifier of the beat will be cognized as a discontinuous, discrete sound event with a determinable onset, followed by a new onset of a tone, same or distinct, or by a pause (a void beat).

Since the rhythmic organization is serial, finite and cyclic, this alliance of tone and beat leads to the invention and stabilization of finite scales— series of notes separated by stable intervals and united by their affinity as sets of elements that combine syntactically into cognitively and emotionally clear melodic forms. As soon as a note is integrated in a scale, it acquires a name, e.g., do - re - mi / c - d - e. Scales are sometimes associated with affective moods and social situations in such a way that a musical culture will dispose of different scales felt as appropriate for correspondingly different moods and situations (such as are explicit in the genres of *flamenco* music and the *ragas* of India). In a sense, these scale systems are psychological and sociological 'theories' in themselves. They 'interpret' significant moments of shared human time, with universal emotional appeals as well as conventions of acceptance.

Discretization (tones are discrete units, not *glissandos*) and finitization (beats are members of finite recursive series, not elements of an unending train) are thus basic aspects of the genesis of symbolic expressions. When the human voice finally stabilizes the sets of linguistic sounds we call phonemes, it does so within a phenomenology of syllables, but on this phonotactic level—more easily experienced than single consonants and vowels—discretization and, to a certain extent, finitization likewise take place (words are relatively short series of syllables). The syllabic phenomenon, including the naturalness with which we articulate