RESILIENCE IN THE PMT

PMT SUMMER SCHOOL, RANDERS, DENMARK

Nathalie Pichon, Lecturer at ISRP, France
Chris Raaijmakers, Lecturer at HAN, Hogeschool Arnhem & Nijmegen, The Netherlands

Literature for the workshop:
http://www.kessels-smit.nl/files/logicallevels_handout_Engli.pdf
http://rhythmcoglab.coursepress.yale.edu/wp-content/uploads/sites/5/2014/10/Narrative-in-Music-and-Interaction-Editorial.pdf

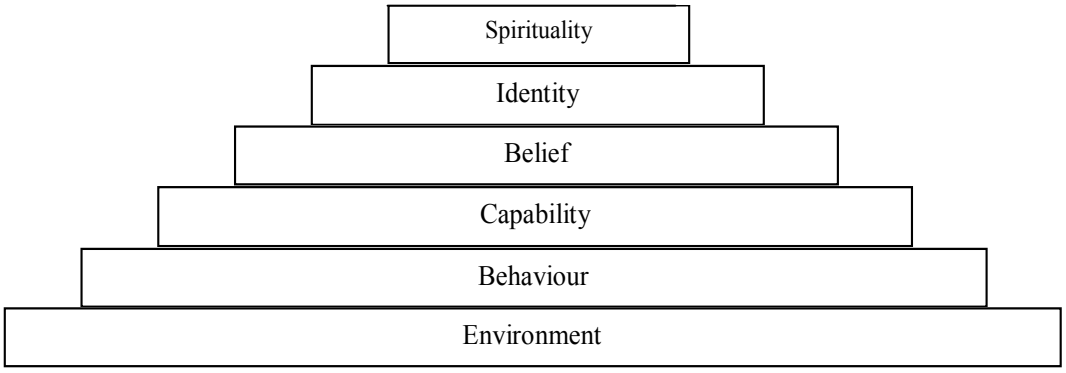
Further readings:
http://www.integrativ-terapi.no/eait/publications.pdf
Musical_narrative_and_motives_for_cultur(2).pdf

Logical levels

(based on Gregory Bateson and Robert Dilts)

How to think on a higher level

An insight into the logical levels associated with learning is of benefit to the enhancement of the personal ability to learn and the enhancement of the ability of others to learn.
The effect of each level is to organize and direct the information on the level below it. Changing something on a higher level would necessarily change things on the lower levels; changing something on a lower level could but would not necessarily affect the upper levels.
The level at which a person experiences his problem can be recognized from the way in which he tells his story and asks questions. If you remain stuck on a certain thinking level a problem may seem completely unsolvable. A coach can raise a person's thinking level by asking questions and so opening up a new perspective.
The ability to learn can be encouraged by adapting to the relevant level or by challenging the person to think at the next highest level.



Environment (where, when):

The environment level involves the specific external conditions in which our behaviour takes place. The emphasis is on explaining what happened, with whom, how and where. The narrator places the cause of what happened in the story outside himself. A lot of energy goes into explaining how something came about. This also includes grumbling and complaining.

Behaviour (what):

Behaviour is made up of the specific actions or reactions taken within the environment. The emphasis is on what the narrator himself thought and did and what influence he himself exerted on the situation. Behaviour also includes the narrator's thoughts about his possible own influence and what he could have done to influence the situation.

Capability (how):
Capabilities guide and give direction to behavioural actions through a mental map, plan or strategy. By analysing his own influence the narrator thinks of actions he would have liked to have done, but which do not belong to his repertoire yet. The narrator's capabilities direct his behaviour. Here we are dealing with a plan or strategy that forms the basis for the behavioural actions so that the narrator gets a better grip on the situation and on himself.

Belief (why):
Beliefs and values provide the reinforcement that supports or denies capabilities.
The narrator considers the motives behind the behaviour, the underlying standards and values.
Beliefs are expressed in a recognizable pattern that appears in different situations.
Limiting beliefs can stand in the way of the use of existing capabilities.

Identity (who):
Identity factors determine overall purpose and shape beliefs and values through our sense of self. Here the narrator explores personal quests for meaning such as the quest for a higher purpose, his mission. Why do I feel so washed out here, what is worth the trouble for me, what makes me blossom, what challenges me and what is my passion.
This level is often involved in burnout and feelings of excessive tension.

Spirituality (what for, who else)
Inspiration relates to the fact that we are part of a larger system that reaches beyond ourselves as individuals to our family, community and global systems. This level can also be referred to as the wisdom level.
The narrator sees (his) connection to the greater whole. This level often calls for attention in the event of a (life) crisis.

Literature
Changing Belief Systems with NLP, Dilts. R., Meta Publications, CA, 1990

Site:
www.nlpuniversitypress.com

Spirituality:
I feel the support of a larger system

Identity:
I am important, my existence is significant

Belief:
My opinion is a contribution to the project

Capability:
I can communicate my intention

Behaviour:
I explain it properly

Environment:
My colleagues understand my proposal

Narrative in music and interaction editorial

Musicae Scientiae 2008 12: 3
DOI: 10.1177/1029864908012001011

Musicae Scientiae
Special issue 2008, 3-13

NARRATIVE IN MUSIC AND INTERACTION

EDITORIAL

This special issue is based on the presentations and rich discussions held during two symposia at the joint conference of the European Society for the Cognitive Sciences of Music (ESCOM) and of the International Conference on Music Perception and Cognition (ICMPC), which took place in Bologna, Italy, in August 2006. The themes of the two symposia were centred on the question of the origins of human musicality, especially through the notions of *gesture*, *intersubjective communication* and *narrative*. The following texts develop these notions through careful argumentation and empirical demonstration. In some sense this special issue can also be seen as a follow-up to the one entitled *Rhythm, musical narrative, and origins of human communication*, published in the same journal in 1999.

The idea of an innate *"communicative musicality"* was first developed by Stephen Malloch (1999) and Colwyn Trevarthen (1999), (see Malloch & Trevarthen, in press). Musicality is rooted in a human capacity to partake in forms of communication with close others giving rise to both local intersubjective experiences and broader socio-cultural affiliations. Musicality is thus primarily an interactive and communicative process; one that puts into play not only the human voice and its musical inflections but also the whole body, its gestures and orientations. The temporal and dynamic profiles of the embodied gestures involved in interaction shape both individual expression and forms of interpersonal sharing, whether in the context of musical performance, conversation, child play or, most obviously perhaps, affectionate communication between adults and preverbal infants. Based on their observations of mothers and infants in diverse contexts, Malloch, Trevarthen, and also Gratier (1999, 2003) and Devouche and Gratier (2001) show that this temporal profile presents three fairly steady qualities. All interactive musical communication has a regular implicit rhythm that has been called the *pulse* of the interaction. It presents also a sequential organisation whose units are most often *shapes* or *melodic contours*. Finally it transmits something like a content that can be described as *narrative*. Malloch (1999) defines narrative as fundamentally temporal and intersubjective: "Narratives are the very essence of human companionship and communication. Narratives allow two persons to share a sense of passing time, and to create and share the emotional envelopes that evolve through this shared time" (1999, p. 45). Daniel Stern (1985) called this sequential profile that unfolds in time with a beginning, a development and an end a *proto-narrative envelope*. It is what gives unity to shared experience within the "present moment" (Stern, 2004), which is cut out against the continuity of time and interpersonal exchange.

The idea of a human musicality then subsumes the concepts of gesture,

intersubjective communication and narrative. But two complementary research directions are emerging today. The first one concerns the structures of musicality — and especially of narrative — in children and adults within communicative contexts. Its aim is to understand the stages of development of proto-narrative envelopes, their interactions with linguistic structures, with the structures of musical systems, and more generally with the cultural systems of communication. Many of the texts presented in this special issue are concerned with these questions (Trevarthen, Gratier, Imberty, Vitale, Delavenne *et al.*).

The other new direction is concerned with the biological evolution and the neurophysiological origins of narrative taken as a specifically human means for apprehending time and as a means for the cognitive and affective adaptation of the human mind to social and cultural forms of time. If musicality is seen as constitutive of the human capacity for culture, the "process of telling", which was a subject of such fascination for anthropologists in the 19th century, must no longer be seen as merely a social practice, but indeed also as a practice that is biologically determined by the laws of the human species (Cross, Dissanayake). These two new research directions go hand in hand because they aim, each in its own way, to demonstrate how "homo loquax" is first and foremost a story-teller and also a historian and a conjuror of tales. If human socialisation is based on an intersubjective musicality, it is perhaps because both a capacity and a need for communication are woven into the genetic make-up of mankind. This comes down to saying that human societies are products of the changes and adaptations of biological beings "thickened" by history. After 30 years of chomskyan "generativity" according to which language is no more than the manifestation of a specific cognitive competence with no direct relation to the capacity to communicate, it is time to re-situate language as only one of the *many* tools that create and support communication with others; communication being more than just a capacity, being in fact an imperative *necessity*.

Let us try to be more specific about this concept of *narrative* which is the core concept of this special issue. In a world dominated by language and signs, narrative form is what constructs the unity of time and divides into chunks the process of human becoming. But outside of language, or before it, human experience is already divided into temporal profiles, into affective "moments" which, in the course of changing states, retroactively, form dividing lines and borders creating well-bounded episodes able to cast us back to a living past or to propel us ahead towards the outline of a future. This constitutes perhaps the first stage in the semiotisation of affective and cognitive experience, both subjective and intersubjective. It is rooted in this very process of parsing and dividing into unified and coherent sequences, which means that something takes on a form and direction, makes sense in time. "The basic idea", writes Daniel Stern (1998, p. 182, *own translation*), "is that continuous interpersonal experience is parsed through a capacity for narrative thinking. We suppose that narrative thought is a universal means by which people, including newborns, perceive and think about human behaviour". Narrative thought is organised around two interdependent aspects. First, a *plot* must

connect the "who, where, why and when" of human action. It is based on a perception of human behaviour as motivated and directed towards a goal. Second, a "line of dramatic tension […] (which) is the contour of feelings as they emerge in the moment" (Stern, 1998, p. 182, *own translation*), in other words a temporal feeling form. The proto-narrative envelope then is organised around this putting into play of an intention-motivation (orientation to a goal). It delineates a portion of time in which the infant senses her own coherence, that is relates to her self (her sense of a core self) the sensations of her needs (such as being hungry), of her acts (movements, cries, ...), of her perceptions (of faces, qualities of touch, voices, ...), of her feelings (emotions and vitality affects associated with sensation, movement, perception). Yet is remains below the surface of language, as an intuitive line of dramatic tension. It is thus a proto-semiotic form of the internal experience of time, a matrix for the "telling" of rising tensions and gradual releases of tension connected directly to the "plot" (or "quasi-plot") of a search for satisfaction (or belonging). It is what gives experience its global unity, however complex it may be.

The perception of music in fact is based on the same principles. The musical phrase and the piece itself are proto-narrations, perhaps then both are "*romances sans paroles*". Although it unfolds in time, musical form has an architectural unity that situates it in a sort of *psychological present* (Fraisse, 1957) or "present moment" (Stern, 2004) cut out of a continuity, that listeners must reconstruct both through successions marked by changes and through the extra-temporal connections that for instance, by being anchored in memory, enable them to identify from a certain distance repeated themes, recurrences, and complex games of recollection. This may appear somewhat paradoxical given the length of many musical works but it is nonetheless very much a reality at the level of simple melodic figure. For a listener discerns a melodic figure in the continuous flow of sounds that he can control through active anticipations and incessant retroactions that orient his immediate perception of the upcoming conclusion of a sequence. This orientation of the listener is essential for the unity and continuity of a "movement", in a word for there to be meaning (Imberty, 2005).

The vocal qualities and exchanges between mother and infant play a fundamental role in the construction of proto-narrative structures. The voice is particularly involved because it consitutes our most natural "instrument" for communication. From a very young age, infants are able to understand the expressive intonations of adults' voices and can in turn produce expressive sounds that can be deciphered by others. The subtle games of repetition and variation that infants and mothers partake in — of rhythm, pitch, contour, timbre, intensity, accent — support the infant's first experiences of time and identity, their sense of continuity and their creativity (Gratier & Apter-Danon, in press; Gratier & Devouche, submitted). Sensitive and constant continuities and games of repetition and variation in affectionate social exchange must create for the infant a sense — perhaps still hazy — of passing time, a sense that her own experiences of exchanging with her mother are organised into a "before", a "during" and an "after". Thus, the intimate sense of a lasting time and affective relation are closely tied. Voice appears as a

crucial vector for moments of meeting and discovery in an infant's experience. With its melodic lines, the voice weaves for the infant a sense of unity. And with its communicative intonations it organises a sense of "narrrativity" (Imberty, 2005).

In a recent paper discussing proto-narrative aspects of mother-infant interaction, Gratier (2007) highlights the role of "phrasing" in interaction in producing meaning through the organisation of tension towards an end-point. She suggests that human time, from the first months of life, is a time that is parsed, cadenced, made up of unified sequences that each carry and together build meaning. These bounded sequences, furthermore, recall memories of experiences that relate self and other in past time. To tell a story is above all to give rhythm to one's voice, by accelerating and then slowing down, making the sounds of speech, the words, either dense or sparse, loud or soft, fluent or staccato. And these ways of telling for others come to make up a person's *style*, habits of voice and habits of shaping time with it. Gratier (1999, 2003, 2007) has shown that young infants acquire styles of interaction that are in tune with the cultural contexts they are born into.

But the voice cannot be separated from the body that projects it. The use of the voice involves a particular relation to the body, one that is represented and mediated by an intimate history of relating to the sensations and uses of the body. These experiences of the body provide both a complex yet efficient framework, that is both spatial and temporal, and a set of dynamic indicators pertaining to states of neuromuscular tension and to energetic regulation and economy. This information constitutes sensori-motor and representational schemata, as well as motor and emotional schemata of tension and release that support the extra-linguistic and extra-categorical identification or recognition of basic experiences of the body and its relations with physical and human environments. For example, the activity of singing involves the muscles surrounding the larynx and pharynx and the activity of listening to someone sing involves one's own kinesic representations of the movements and gestures made by the singer to produce the particular audible melodic gestures. This sympathic and irrepressible mimesis brought about by the singing voice is the subject of the paper by Vitale presented in this special issue. It is undoubtedly responsible for the emotional power of singing in all cultures of the world as well as for the proto-narrative organisation (as an oriented temporality) of the experience of singing in musical social communication. And the same can be said for rhythmic gesture and instrumental gesture. Though the latter are primarily related to musicians' sensori-motor learning and acquired experience, the perception of melodic figures and rhythmic grouping based on them seems to be more related to dance, at least in its most elementary form. In fact in many cultural contexts, a sequence of sounds is considered as music only if it is "danceable" (Arom, 1988). Thus music listening is organised by kinesic representations closely involved in deciphering the meaning of what is heard.

As Michel Imberty reminds us in his text, the neurologist Antonio R. Damasio views core-self awareness as a non-verbal awareness that organises a proto-narrative temporality of experience. When for instance we remember an object, it is our entire history of

relating to that object, our acts, manipulations, emotions and specific feelings involving it in its various contexts that are invoked. The remembered object then is no longer just an external physical object. It takes shape in us through "somato-sensory maps", plans of action and actions that have been or can be sollicited at the moment of its evocation. All of these elements together create an orgnaised and coherent image of the object which can then be embedded in a wider context. According to A.R. Damasio, this is the basis of nonverbal narrativity. Telling stories without words is a perfectly natural practice which is most probably not specifically human. Colwyn Trevarthen develops this point in his text through the observation-based descriptions of infants in different developmental phases showing their remarkable mimetic communicative abilities. An ability which is at the heart of a "preverbal semiosis" based on the polyrhythmic actions of the body that create stories of intention. Through participation in everyday poetic action rituals that include songs and games, infants learn to anticipate the musical organisation and the expression of intention through the rhythms of the body, movements, gestures and melodic inflexions of the voice. They can do this long before they can speak, and continue to do so even once they have acquire linguistic ability. In fact, in interaction with their parents infants very clearly organise their expressions in terms of 3 to 4 second phrases that are articulated together to form expressive narratives whose intentions (orientations) are understood by adults. But the infant's basic motive in behaving like this is also to show with pride that he belongs to the same world as the adults, a human world made of dreams and recounted stories shared mimetically and expressively through a fundamentally temporal dimension. Music itself, as an art form, originates in this world of shared musicality and human proto-musical activity which is the expression of a narrative brain. Trevarthen develops this idea according to which narrative is essential to being human in a temporal world.

The concept of narrative (or proto-narrative, our vocabulary is sometimes not precise enough) has thus taken on a broader meaning. Many authors, including many whose work is presented in this issue, consider intentionality as a fundamental characteristic of narrative. Trevarthen and Gratier (2005) write: "a person gives voice to chains of purposefulness and the anticipation of experience. The voice can imagine a story of intention, or reflect on past experiences by reproducing the 'narrative' of agency." We can define intentionality in such a context from a phenomenological perspective, in particular one based on Husserl's approach which describes it first and foremost as a movement of consciousness giving rise to the phenomena of the world. It is the aim of consciousness which accounts for the fact that consciousness is above all a meaning-making process. "Every *cogito*, in as much as it is conscious, becomes the meaning of the thing it is aimed at. But this meaning *overshoots* at every moment what, in that very moment, is given as the explicit aim of consciousness"[1] writes the philosopher in his second *Cartesian Meditation*. Psychological perspectives on narrative present it as a

(1) Own translation.

capacity to "give meaning" even when it is not immediately referential. "Stories of intention" are thus non-referential stories or perhaps multi-referential or variably referential ones. In short, stories whose movement, line of dramatic tension, quasi-plot (to borrow Stern's words) are only understood through this intuitive aim of the experience of self and other in a time that they define. Intentionality is a *human capacity to give a priori meaning* through the experience of a world held in common and through a sharing of action.

In his text, Ian Cross describes what he has called the "*floating intentionality*" of musical and proto-musical practices. He takes his concept one step further here by showing how human musicality and the "proto-musical practices" it gives rise to are among a number of human capacities for culture. He suggests that the function of "proto-musical activities" (which include all human activities and behaviours that contribute to building interpersonal and social relations) is to support the mechanisms that enable greater cognitive flexibility and the means to explore and acquire social and cultural capabilities and competencies. Children seem to be precociously sensitive to the differences between cognition and behaviour, but proto-musical behaviour plays a particular role among all the other forms of behaviour. It helps integrate various cognitive realities with the actions or means for processing them. Unlike other specialised forms of behaviour, proto-musical behaviour does not refer directly to something specific (in the way that a declarative piece of discourse refers to an object with a meaning and a specific reference). Rather, a proto-musical behaviour can be experienced as though it could refer to different things at different times and even as though it could be related to more than one referential reality at once.

> "In other words, proto-musical activities have a kind of *floating intentionality*, with transposable and probably multiple references. The floating intentionality of proto-musical behaviour can be exploited in infant as a means for building connections between different kinds of capacities that may be psychological, biological or mecanical. Being a form of proto-musical activity, music itself can support the emergence of a *metaphoric realm* that is activated in order to create and maintain the cognitive flexibility that seems to be specific to our species"
>
> (Cross, 2003, cited in Imberty, 2005).

This non specification of proto-musical activity means that it can apply to diverse areas of the child's adaptive life which is concerned, perhaps above all, with the construction of trusting and lasting social relations. On this point Ian Cross agrees with the preceding authors but he highlights the fact that it is indeed the "floating intentionality" of meaningful actions that enables the progressive move from the social to the individual. In a certain sense, music — or proto-musical activities — introduces into our biological program a degree of freedom that is necessary for the development of the flexible and differentiated activities and capabilities that generate variety in human culture. Furthermore, what seems to characterise *Homo sapiens sapiens* is precisely the

extreme cognitive complexity of the species. The musicality of behaviour, taken as a capacity for cognitive and social flexibility, founds all social and cultural behaviour, and in this sense, musicality also founds the diversity and complexity of social systems and ethical ideals brought about by art and music. This is the point of view Ian Cross develops in his text. He highlights the extraordinary diversity of meanings and uses of music throughout the world and his arguments on human cognition gain support from anthropological evidence.

A similar perspective is adopted by Ellen Dissanayake. She too views human musicality as a highly adaptive biological function. She shows in particular that music, in all its cultural diversity, is a consequence of what she calls a "process of ritualisation", borrowing the term from the field of ethology. In their interactions with infants mothers modify various parameters of their behavioural signals in order to make them more efficient and less ambiguous. These manipulations of communicative signals are comparable to those observed in the ritualised behaviours of other species. Naturally mother-infant communication is not considered to be ritualised *per se* but the characteristics of the spontaneous transformations of signal involved in ritualisation processes and in proto-musical interactions between mothers and infants are similar. In both cases the behaviours involved are the outcome of evolved capacities that can be used in other contexts, such as in adult relationships, between social groups and indeed in musical acitivity itself.

Though it may not be explicit in her text, Dissanayake's presentation of ritualisation as evolved proto-musical capacity is not disconnected from the concept of narrative. Indeed, because ritual is enacted in everyday human conduct, it can be considered as a sort of emphatic story about human social behaviour, the role of which is, first, to draw attention to it — as in mother-infant communication —, and second to unambiguously transmit its social and affective content. In a book entitled *De l'acte à la pensée*, the French psychologist Henri Wallon (1942) described ritual in terms of simulacra derived from the imitation of motor behaviour. The ritualisation of behaviour according to him closely resembles what Ellen Dissnayake describes in her text as the "formalization, repetition, exaggeration, and elaboration [of communicative sounds and mouvements] attracting attention and arousing and shaping emotion". This communicative repertoire, which is in a sense dramatised to ensure the efficiency of dyadic communication, is closely associated with the infant's precocious sensitivities to the subtle expressions of the human voice and body. According to Dissanayake, we can describe this repertoire from which different cultures derive their rituals and art forms, as "proto-musical" or "proto-aesthetic".

Returning to the work of A.R. Damasio, we may note once again the common thread between ritualisation and the perhaps more general process of the "narrativisation" of experience, be it sensory-motor, affective or intellectual.

> "Wordlesss storytelling is natural. The imagetic representation of sequences of brain events, which occurs in brains simpler than ours, is the stuff of which stories are made. A natural

> preverbal occurence of storytelling may well be the reason why we ended up creating drama and eventually books, and why a good part of humanity is currently hooked on movie theatres and television screens."
>
> (Damasio, 1999, p. 188)

Neurobiology concurs with the views presented in this special issue suggesting that genetically programmed behaviour involved in the first human relations are manifestations of what Ian Cross calls the human capacity for culture.

And most remarkably these genetically programmed behaviours are by nature "proto-narrative" and are thus characterised by a souple, labile and cognitively polyvalent intentionality. Here again the biologist provides an important key for understanding narrative:

> "Philosophers often puzzle about the so-called problem of 'intentionality', the intriguing fact that mental contents are 'about' things outside the mind. I believe that the mind's pervasive 'aboutness' is rooted in the brain's storytelling attitude. The brain inherently represents the structures and states of the organism, and in the course of regulating the organism as it is mandated to do, the brain naturally weaves wordless stories about what happens to an organism immersed in an environment"
>
> (Damasio, 1999, p. 189).

This text could serve just as well as a conclusion (a temporary one) to this special issue as it serves as introduction. The perspectives presented here, on narrative, intentionality of human actions and biological origins of musicality all converge. All of the articles in this special issue take root in these notions, yet each treats them with originality and contributes to liven the debate. Delavenne *et al*. focus on qualities of musicality in mother-infant interaction picking up on Malloch and Trevarthen's insights. Vitale is concerned with the relation between expressive gesture and musical interpretation. Which gestures support the voice of a singer, how are they organised and what do they signify? These are some of the questions that refer back to the idea that music is, as Trevarthen says, a "mimetic narration" which is the first temporal organising principle for human intersubjectivity and culture.

As for Gratier and Imberty, they both address the issue of the specificity of intentionality and narrative in musical activity *per se*. Gratier examines the communication processes between two improvising jazz musicians and asks how one musician understands and acts on the intentions of the other. She uses a model taken from the study of situated human conversation (Clark & Brennan, 1991) and suggests that a "shared phrasing" and different forms of imitation between improvising musicians are a crucial basis for the negotiation of musical intention. She brings support to the idea, developed in studies of mother-infant communication, that the negotiation of meaning between people depends on temporal coordination on various intersecting time scales. A stability of style is thus achieved by building "common ground" through grounding

meaning in well-timed interaction. This bringing together of in situ observations of jazz improvisation and of adult conversation and adult-infant protoconversation provides a frame for illustrating the hypotheses put forward by Cross and Dissanayake. Finally, Imberty, tries to stretch the concept of narrative further still, by trying to make sense of the recent history of western music. Schoenberg and Debussy, among others, were instigators in the 20th century of a move away from directional linearity and proto-narrativity in tonal music, thus enabling the emergence of new forms of musical time built on the superimposition of multiple lines of dramatic tension that have neither the same way of developing, nor the same way of ending. Thus two distinct temporal musical realities take up contradictory positions in the early 20th century. On the one hand, we have the continuity and linearity of proto-narrative musical structures, and on the other hand, the fractures and "encystments" of the past in the conscious present, fractures that send the listener back not so much to the past as to an unconscious repression. The predominance and organising power of proto-narrative structure as the fundamental structure of human experience may explain why listeners felt so bewildered and disoriented by the musical inventions of the first half of the 20th century; and why composers then tried to regain forms of continuity that were closer to linear time. Imberty's paper explores the relationship between narrative, culture and history.

Address for correspondence:
Michel Imberty
Centre de Recherche en Psychologie et
Musicologie Systématique (Psychomuse)
Maison Max Weber (K 226)
Université Paris X — Nanterre
92001 Nanterre Cedex
tel.: + 33(0)1 57 90 79 02
e-mail: mimberty@club-internet.fr

Maya Gratier
Centre de Recherche en Psychologie et
Musicologie Systématique (Psychomuse)
Maison Max Weber (K 226)
Université Paris X — Nanterre
92001 Nanterre Cedex
tel.: + 33(0)1 57 90 79 02
e-mail: mgratier@u-paris10.fr

• References

Arom, S. (1988). Du pied à la main: les fondements métriques des musiques traditionnelles d'Afrique Centrale. *Analyse musicale, 1*, 16-22.

Clark, H. H., & Brennan, S. A. (1991). Grounding in communication. In L.B. Resnick, J.M. Levine, & S.D. Teasley (eds), *Perspectives on socially shared cognition* (pp. 127-49). Washington: APA Books.

Cross, I. (2001). Music, cognition, culture and evolution. *Annals of the New-York academy of sciences, 930*, 28-42.

Cross, I. (2003). Musica. cultura y évolution. *Tercera Reunion Annual de SACCOM: Music y Ciencia*. Actas in CD-ROM, Universidad Nacional de La Plata (Argentina).

Damasio, A.R. (1999). *The feeling of what happness. Body and emotion in the making of consciousness.* New-York: Harcourt Brace & Company.

Devouche, E., & Gratier, M. (2001). Microanalyse des rythmes dans les échanges vocaux et gestuels entre la mère et son bébé de 10 semaines. *Devenir*, *13* (2), 55-82.

Fraisse, P. (1957). *Psycholologie du temps*. Paris: Presses Universitaires de France.

Gratier, M. (1999-2000). Expressions of belonging: The effect of acculturation on the rhythm and harmony of mother-infant vocal interaction. *Musicæ Scientiæ, Special issue: Rhythm, musical narrative, and the origins of human communication,* 93-122.

Gratier, M. (2003). Expressive timing and interactional synchrony betweern mothers and infants: cultural similarities, cultural differences, and the immigration experience. *Cognitive development, 18*, 533-54.

Gratier, M. (2007). Musicalité, style et appartenance dans l'interaction mère-bébé. In M. Imberty & M. Gratier (eds), *Temps, geste et musicalité* (pp. 67-97). Paris: L'Harmattan.

Gratier, M., & Apter-Danon, G. (in press). The musicality of belonging: Repetition and variation in mother-infant interaction. In C. Trevarthen & S. Malloch (eds), *Communicative musicality*. Oxford: Oxford University Press.

Gratier, M., & Devouche, E. (submitted). Imitation makes it last: prosodic matching in vocal interaction in the 3rd month.

Husserl, E. (1929). *Méditations cartésiennes*, trad. française Peiffer, G. & Levinas, E. (1953). Paris: Vrin.

Imberty, M. (2005). *La musique creuse le temps. De Wagner à Boulez: musique, psychologie, psychanalyse*. Paris: L'Harmattan, col. "Univers Musical".

Malloch, S.N. (1999-2000). Mothers and infants and communicative musicality. *Musicæ Scientiæ, Special issue: Rhythm, musical narrative, and the origins of human communication*, 29-57.

Ricoeur, P. (1983). *Temps et récit*. Paris: Seuil.

Stern, D. N. (1985). *The interpersonal world of the infant*. New-York: Basic Books.

Stern, D.N. (1995). *The Mothermood constellation*. New-York: Basic Books, Harper Collins.

Stern, D.N. (1998). Aspects temporels de l'expérience quotidienne d'un nouveau-né : Quelques réflexions concernant la musique. In Darbellay, E. (ed), *Le temps et la forme. Pour une épistémologie de la connaissance musicale* (pp. 167-85). Genève: Droz.

Stern, D.N. (2004). *The present moment in psychotherapy and everyday life*. New York, NY: Norton.

Trevarthen, C. (1999-2000). Musicality and the intrinsic motive pulse: evidence from human psychobiology and infant communication. *Musicæ Scientiæ, Special issue: Rhythm, musical narrative, and the origins of human communication*, 155-215.

Trevarthen, C., & Gratier, M. (2005). Voix et musicalité: nature, émotion, relation et culture. In Castarède, M.F. & Konopczynski, G. (eds), *Au commencement était la voix* (pp. 105-16). Ramonville Saint-Agne: Erès.

Wallon, H. (1942). *De l'acte à la pensée*. Nouvelle édition 1970. Paris: Flammarion.