

Music and social being

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Introduction

In this paper I shall make a number of claims about music. I shall claim that music, like language, is a fundamental part of the human communicative toolkit. It is unique and specific to humans, but music is not "natural" while language is symbolic; music and language are both equally symbolic and natural domains of human thought and behaviour. I shall propose that music - musicality - underpins the intellectual and social flexibility displayed by modern humans. As a corollary of this, I shall claim that many of the most important abstract concepts that frame and give meaning to human interaction - such as social justice, that aspect of morality which is concerned with the achievement of equity in human relations - have their roots in human musicality. I am not proposing that without music there can be no social justice; I am simply submitting that without musicality the flexibility in managing social relations that characterises modern humans and that constitutes the matrix within which abstract conceptions such as social justice can take form is less likely to have arisen.

The particular consideration which led me in the direction of these conclusions was the realisation that music as conceived of from scientific and from humanistic perspectives seemed to be two quite different phenomena. For the most part the sciences have tended to treat music as complexly patterned sound exemplified in the forms, materials and structures of the western common-practice period, which humans produce and perceive by means of a range of both general and music-specific cognitive and neurobiological operations (Cross, 2003). On the other hand, for the humanities, and particularly musicology and ethnomusicology, music is a social and cultural phenomenon which cannot be explored independently of the social contexts within which it occurs (Tomlinson, 1993).

This dichotomous characterisation will immediately be recognised as something of a caricature, but it is a caricature that does appear to reflect broad and historic trends in the scientific and humanistic treatment of music. From my own perspective - that is, of someone who is aiming to explore music by means of the sciences yet is based in a department of musicology - I want to believe that my colleagues and I are all aiming to understand the same type of phenomenon, that is, music; however, our disciplinary commitments seem to be seriously at odds with each other.

This disciplinary dichotomy poses problems for music; or perhaps, standing this statement on its head, music poses a significant problem for the humanities and the sciences. This problem is perhaps made more explicit by repeating my initial assertions about the sciences' and the humanities' views of music, but replacing the term "music" with the term "language" and reconsidering the two disciplinary stances. Thus one would be claiming that

- *the sciences have tended to treat language as complexly patterned sound exemplified in the forms, materials and structures of recent western historical practice;*
and that
- *for the humanities, language is a social and cultural phenomenon which cannot be explored independently of the specific social contexts within which it occurs.*

It seems unreasonable to argue that language and its uses could only be understood in terms of each unique and specific linguistic culture without reference to any considerations that might hold for language use between and across cultures. And it would be completely unfeasible to suppose that a scientific understanding of

language could be achieved by focusing on only one of its manifestations such as, e.g., Australian English.

Languages are self-evidently culture-specific, yet they seem to be grounded in a general human faculty for language (Hauser, Chomsky, & Fitch, 2002). All humans are linguistic beings, having the capacity to acquire and to use language. This distinction between the cultural specificities of language and the biological bases for its acquisition and use has proven to be extraordinarily fruitful in the contemporary study of language. It would seem reasonable to suppose that a similar formulation might be fruitful in respect of music. At the least, an explicit attempt to explore whether or not a human capacity for musicality manifests any cross-cultural commonalities should help to put scientific explorations of music on a more secure and broader footing; it might also help to determine whether or not aspects of culturally-specific manifestations of musicality are grounded in general cognitive and biological capacities and propensities.

Generic musicality

So is there a general human faculty for music, and are there commonalities that can be recognised between musics cross-culturally? Evidence for a positive answer to the first part of this question is not conclusive but is strongly suggestive. All societies of which we have knowledge have something which, from a western perspective, is recognisable as music (Blacking, 1995), and it can be suggested that all cultures tend to expect their members to be able to engage with music in culturally appropriate ways. And human infants seem to be generally primed to engage in music-like behaviours (Trehub, 2003).

While all societies have something recognisable as music, they quite frequently do not have a term in their cultural lexicon that is directly cognate with the term "music" as is typically understood within western cultures (see, e.g., Zbikowski, 2002, p202). Musical activities might be subsumed within a broader category that would embrace singing, dancing etc., as is the case in several African societies. Alternatively, activities that appear to us equally musical might be excluded from the cultural category of "music", as may be the case in some Islamic cultures; as Bruno Nettl has noted, "Persian musicians think of instrumental, metric, composed music as quite a different thing from vocal, non-metric, improvised chant or song" (Nettl, 2005). In all, the absence of a term cognate with "music" from a culture's lexicon certainly does not indicate that that culture does not engage in musical activities.

The culturally-appropriate ways in which members of a culture may engage with music take a wide variety of forms, often seemingly constrained by broader social dynamics. For example, in contemporary western cultures, there is a general expectation that everyone should be able to engage with music in listening, that is, to perceive something as music and to understand it as such. In many other, perhaps most other, world cultures, there is an expectation that members of a culture will be able to participate actively and collectively in the production and perhaps creation of music (see, e.g., Arom, 1991)). The western model, from a broad perspective, would seem to be something of an aberration, limiting the role of cultural member to that of consumer of musical commodities. However, in western cultures active engagement in music-like behaviours is perhaps more the rule than the exception, if we expand our notion of music to embrace those forms of behaviour such as dance that in other cultures are included under a broader umbrella term. And even in respect of a more

limited notion of music that excludes dance, active participation in music-making in western societies is still more widespread than is generally recognised (Finnegan, 1989). It should be noted also that even in those few cultures where music has actively been proscribed, such as Afghanistan under the Taliban regime, active engagement in musical behaviours still manifested themselves widely in the form of the singing of devotional song, though this was not explicitly acknowledged to constitute music (J. Baily, *pers. comm.*).

Over the last thirty or so years an increasing body of evidence suggests that human infants are predisposed to engage in music-like behaviours. As Sandra Trehub (Trehub, Schellenberg, & Hill, 1997) has noted, infants are rather capable listeners, a claim supported by a growing body of research data. And even very young infants, in their interactions with their mothers or caregivers, show a precocious capacity to engage with and to produce complex patterns of sound and action (Trevvarthen, 1999). Overall it appears likely that human infants are as primed for music as they are for language, and a capacity to engage with and engage in music is inscribed in our biologies. However, the ways in which such capacities are expressed take very diverse forms across cultures, which leads to exploration of the second part of the initial question, whether or not music, or musical behaviours, exhibit commonalities across cultures.

Commonalities of music - structure

What commonalities might we expect to find in music across cultures? Tackling this question appears to be a daunting task, as musics seem as diverse as do cultures. Nevertheless, one might expect that similar perceptual and cognitive capacities of humans across cultures would lead to the privileging of certain types of structural features in similar ways across cultures. These generic structural musical features might arise from constraints on working memory, or biases towards particular periodicities in attentional focus. They might emerge from constraints on the operation of human perceptual, auditory systems.

Certainly it does appear that constraints on working memory might underlie a generic tendency of musics to employ discrete and structurally asymmetric sets of notes. These types of structural features should enable us to identify and discriminate between significant elements of music - melodies, motifs - in ways that are generally manageable by all humans, given that our capacity to handle information "on the fly" in real time has limits that are set by our neural architectures (Krumhansl, 1990). Moreover, our abilities to deal with - that is to comprehend and to produce - patterns of events in real time seem to rely on processes that are biased towards privileging information that occurs at regular temporal intervals (Drake, Jones, & Baruch, 2000). These processes also govern the ways in which we tend to produce patterns of events, and it seems likely that they constitute the core components of the perception-action cycles that underpin active engagement with or interaction in music. I shall return to this point shortly.

One might also expect that there should be a clear influence of the operation of our auditory systems on the nature of cross-cultural musical commonalities. So, for example, certain combinations of sounds appear "rough" while others appear clear or distinct. This appears to relate to the ways in which the auditory system resolves combinations of sounds; sounds of which the constituent frequencies are very close together will excite the same areas in the inner ear, and will seem confused or rough, while those with widely spaced frequencies appear clear (see Moore, 2003). So

might there be a general preference for combinations of sounds of which the constituent frequencies are widely spaced? For example, in a western context, combinations of sounds that are rough are regarded as dissonant, while those that are clear are regarded as consonant, and this perceptual effect appears to be exploited in the structure of much - if not most - of recent and current western musics (see Parncutt, 1989).

But if we look at particular non-western practices we find that there may be a preference for rough sounds in some contexts. An instance of this is found in the concept of *tara* in music of Northern Potosí in Bolivia (Stobart, 1996), where in some musical contexts there is an overt preference for sounds with inharmonic rather than harmonic spectra (a preference for 'sensory dissonance' over 'sensory consonance') that seems almost directly opposed to the preferred usages in western music, where sounds that exhibit sensory consonance are preferred over those that are sensorily dissonant. In the campesino culture of Northern Potosí, the preferred sound of certain types of wind instrument (such *pinkillu*, end-blown flutes), may be profoundly inharmonic and rough; such sounds are said to possess *tara*. This preference in certain musical contexts for sounds with *tara* appears to be related to acoustical features of the sounds made by rutting llamas (ibid.), and may be tentatively linked to the ecological and economic significance that this sound quality has for the lives of the people of Northern Potosí. This preference can thus be related to survival-critical aspects of interactions with animals that are ecologically specific and highly contingent rather than to any generic sensitivities to acoustical features of the musical signal.

So from the standpoint of western practice a structural musical feature that appears to be understandable in biological terms exhibits no cross-cultural generality in the ways in which it is employed in music. It seems that, in general, the influence of our common perceptual and cognitive endowment on musical practice is culturally contingent to the extent that biases towards particular structural musical usages cannot be predicted across cultures, with perhaps one significant exception: that of our tendency to privilege information that occurs at regular temporal intervals (Drake & Bertrand, 2001).

This capacity appears to underpin active engagement with or interaction through music. In listening to music, there appears to be a general tendency to infer a temporally regular pulse and to organise our experience of the ongoing flow of the music around that pulse. This is also evidenced in the production of music (even in situations where no pulse is evident, such as in the ostensibly unmetred *alap* section of a North Indian musical performance). It can be related to the fact that many of the contexts in which musics occur across cultures are participatory, involving overt and interactive engagement in musical activities. An intrinsic component of such participation is entrainment (Clayton, Sager, & Will, 2004), which involves the co-ordination in time of one participant's musical behaviours with those of another, or others, based on the abstraction of a regular periodic pulse from sequences of rhythmic events and the organisation of the timing of actions and sounds around the abstracted pulse. It also appears to involve the orientation of attention to the timepoints represented by the occurrence of the pulse with a concomitant periodic modulation of the amount of attentional resources devoted to tracking the temporal flow of the music, again oriented around the pulse (Jones & Boltz, 1989).

Commonalities of music - function

Given that music exhibits few structural features in common across cultures, it seems appropriate to explore whether or not music subserves any common functions across human societies. Does music do similar things in different societies, and is it used for similar purposes? Across cultures, music has a multiplicity of individual and collective uses, often being an integral component of other, broader behaviours. It is typically employed for entertainment, in religious and civic ritual, in marking of significant life transitions (such as adolescence to adulthood, funerary rituals), in healing, learning, courtship, and in group affiliation and identification (Clayton, Herbert, & Middleton, 2003). For groups, for individuals and in inter-individual interactions it frequently plays a role in sanctioning behaviour not otherwise socially permissible, as in the *hua'er* songs (Yang, 1994) of northern China (in which individuals and groups from the diverse cultural backgrounds of this region may interact in music in ways that proclaim their cultural affiliations, or which are overtly flirtatious, not to say salacious). As Alan Merriam (1964, p221-2) notes "society and the artist alike consider the artistic utterance as *unrepudiable* in form but *repudiable* as to content"; in these socially liminal contexts music seems to play a significant and privileged role, being capable of permitting "the artist to say - and the consumer to hear (or to see) - the forbidden".

One form of musical behaviour that appears both universal, and tightly and similarly constrained in terms of both structure and function across cultures is music in mother-infant interactions, usually in the form of lullabies. Ellen Dissanayake (Dissanayake, 2000) has suggested that this situation, mother-infant interaction, provides the most significantly universal context for the use of music, proposing that music's capacity to elicit emotion is being exploited here by the mother to regulate the infant's emotional state, and perhaps by both mother and infant in processes of mood co-regulation.

The capacity of music to modulate emotion and mood states (mood states are generally definable as the longer-term background states against which more transient emotion states ebb and flow) constitutes an important reason for its use in contexts other than caregiver-infant interaction across cultures. Music can be used by individuals to modulate and regulate their own moods, and may be used in group contexts to modulate collective mood (Juslin & Sloboda, 2001). Indeed, insofar as music is generally conceived of as bearing meaning, that meaning is often held to be locatable solely in the affective domain. However, music has a demonstrable capacity to be interpreted as connoting, referring and denoting (Meyer, 1956); music, in a range of very different world cultures, is typically experienced and interpreted as referring to phenomena beyond itself (Bohman, 1999), thus exhibiting degrees of intentionality or aboutness. That is, while music elicits emotion it may also signify and convey more apparently specific meanings, and the fact that these meanings are associable with music is indicative of music's symbolic status, a symbolic status that can be regarded as co-extensive with that of language.

I say "apparently specific" because it has proven to be remarkably difficult to pin down any consistencies in the ways that music elicits emotion or signifies particular meanings. The results of a large number of empirical studies of music's ability to evoke emotion indicate that only global features such as intensity - volume - tempo, tessitura and timbre reliably elicit similar types of emotion states. Such stable relationships are likely to be rooted in the ecological significance of sounds with

these properties. For example, across a wide range of animal species, loud sounds with wide tessituras and rough timbres are characteristic of distress or threat signals (Owings & Morton, 1998), and it would be unsurprising if appropriate affective responses to signals with such acoustical correlates were not "hard-wired" to some extent into our emotional systems. Similarly, it can be posited that sequences of sonic and gestural events that are characteristic of human interaction, specifically dialogic interaction, such as antecedent-consequent, question and answer, and concealment and disclosure are likely to have similar classes of meanings attributed to them in perception, albeit most likely non-consciously. And it is certainly the case that within highly specific cultural contexts, for enculturated participants, specific musical signals or behaviours are likely to be construed as bearing quite highly specific meanings, a suggestion strikingly supported by recent neuroscientific findings which show that linguistic and musical contexts, when followed by words that have been rated as incongruent with the preceding contexts, elicit highly similar patterns of brain activity (Koelsch et al., 2004).

It seems that the capacity of music to be interpreted as manifesting this range of emotional - motivational - and intentional states is likely to derive from three distinct sources or dimensions:

- one which relates to aspects of our experience of the world that are conditioned by our biological heritage and that may have some cross-species generality;
- one which is rooted in the specific types of human interaction and interpretations of human interaction that underpin our capacity for cultural interaction and learning;
- and one which derives from the particularities of the cultural contexts in which we develop and come to play a part.

All three dimensions are likely to be simultaneously implicated in the affective and cognitive processes that are engaged in the perception and production of music, both in the experience of music as it unfolds and in the outcomes of that experience.

The influence of the simultaneous availability of these three, largely discrete, dimensions in musical meaning is likely to endow any single piece of music or distinct set of musical behaviours with a multiplicity of meanings. As Langer (1942, p195) put it '...music at its highest, though clearly a symbolic form, is an unconsummated symbol. Articulation is its life, but not assertion; expressiveness, not expression. The actual function of meaning, which calls for permanent contents, is not fulfilled; for the *assignment* of one rather than another possible meaning to each form is never explicitly made.' I would suggest that Langer's proposal be reformulated, as meaning is indubitably assigned in the experience of music; the meaning that is assigned, however, is likely to vary from listener to listener, or from participant to participant. Music exhibits an essential ambiguity; it manifests what I have called elsewhere (Cross, 1999) *floating intentionality*.

This proposal fits with what can be observed of the situations in which music occurs in many cultures; it is rarely used in any society for only one purpose but tends to manifest itself in a wide range of contexts where meanings are open, where the boundaries of permissible behaviour are not clearly or explicitly delineated (though it will typically be oriented around a shared time-frame for all participants). Music seems to have the capacity to play a role in virtually any area of human behaviour and interaction that is not concerned with overtly instrumental behaviour, that is, behaviour oriented towards a specific purpose that is inferable from the forms of musical behaviour yet is extrinsic to those forms (other than the pleasure of the

participants). In that sense one can point to a profound functional commonality in music across cultures which appears to be rooted in music's lack of commitment to specificity of meaning.

Proximate functions of music

Why should we engage in something like music, an interactive and apparently communicative behaviour that manifests no clear and unambiguous meanings? After all, language would seem to offer all that's needed of a communicative medium; highly plausible rationales can be advanced for its emergence as a human communicative capacity through processes of evolution (Pinker & Bloom, 1994). But we also have music. It has been suggested that music may be an evolutionary relict of an earlier communicative system that combined aspects of music and language, a remnant with no real efficacy (Mithen, 2005), or that it could be a non-functional byproduct of our capacity for language (Pinker, 1997); in effect, we do music because we **can** do it and it makes us feel good. Nevertheless, music plays too many functional roles in too many cultures to be either a remnant or a byproduct; it does seem to be more parsimonious to conclude that it is doing something communicative that is different from language, but what?

Music's floating intentionality allows participants to interpret a flow of musical behaviours and sounds in individual terms while the temporal regularities of the framework that it provides act to co-ordinate their behaviours and attentional foci (Cross, 2005). Hence participants in a collective musical act - and I include both dance and ostensibly passive listening in this category - may each experience that musical act as bearing personal and potentially quite different, though determinate, significances without the integrity of the collective musical act being undermined. Music can be construed as guaranteeing the success of social interaction by creating conditions for the minimisation of conflict through its semantic open-ness while simultaneously enabling a joint sense of shared action that is oriented around commonly experienced temporal regularities.

Were language to be the medium of interaction the situation would be quite different. The prospective specificity of meaning of language appears to leave much less space for individual interpretation of the significance of any particular linguistic behaviour. Moreover, language's manipulative aspect, evident in its ability to be employed and interpreted as imperative and directive, is likely to impose constraints on each participant's interpretation of others' roles in the overall interaction. Music's capacity to guarantee the success of social interaction makes it an excellently adapted framework for interaction in situations that are on the edge, situations where outcomes are neither clear beforehand nor retrospectively (easily) definable, a point to which I shall return later. But it also means that music is able to act as a medium within which a capacity for flexible social interaction may be rehearsed and perhaps formed.

One fact that has become apparent in recent years is that humans have a capacity to engage socially with each other in a range of ways that far exceeds the scope displayed by any other species in their social behaviours (Foley, 1995). This flexible social competence is evidenced in our unique ability to share intentionality (Tomasello, 1999). We are able to act in conjunction with others in ways that demonstrate that we can not only understand the motivations and intentions of each other in respect of shared goals, but also comprehend and enact the roles that each other may play in effecting that joint action. Our nearest primate relatives do not

display such capacities nor do they appear to display the human predisposition to share intentionality. It has been suggested that this capacity to share intentionality underwrites the human capacity for culture (Tomasello et al., 2004, in press), manifested in the multifarious and dynamic systems of shared meanings through which we may understand each other as ourselves and act together on the world.

We are uniquely flexible in our sociality and highly motivated to be social, factors that lie at the root of our capacity for culture. I propose that it makes sense to conclude that our musicality - our capacity to engage in open-ended yet co-ordinated communicative behaviours - is intrinsically bound to our flexible and motivated social competence. Music, as a communicative behaviour, fulfils a generic function in affording us space to rehearse and to sustain our social flexibility, permitting the expression of, and most likely having contributed to the conditions allowing the evolutionary emergence of, the human capacity for culture.

Having suggested that our flexible sociality is predicated on our musicality, one can postulate a further generic functionality for music in development, and, most likely, in human evolution. It can be regarded as providing a medium for the emergence for a domain-general competence in the course of development by virtue of its floating intentionality. Research demonstrates that infant and young children seem to deal with the world of objects and the world of people in different ways (Spelke, 1999). They can be precociously adept in the expectations that they have about the behaviour of objects in the physical world and of people in the social world; however, precocious abilities in either domain do not seem to be exhibited to the same degree in the other domain. That is, infants and young children appear to have domain-specific competences, abilities to deal with information in sophisticated ways that are restricted in their application to the domain of the physical or the social (and perhaps a few more). Yet older children and mature adults display intellectual capacities that appear domain-general (Karmiloff-Smith, 1992). Elsewhere (Cross, 1999), I have proposed that music's inherent ambiguity, its floating intentionality, enables it to act as a medium in which infants and children (and perhaps adults) may experience behaviours as simultaneously associated with a range of different meanings, helping to build and sustain the metaphorising capacity that underlies domain-general intellectual competence.

So music seems to have at least two generic functionalities, in underwriting social flexibility and in facilitating intellectual flexibility. These two generic functions of musicality would seem to me to be likely preconditions for the emergence of abstract concepts that frame and give meaning to human interaction, such as that of social justice, that aspect of morality which is concerned with the achievement of equity in human relations. The concept of social justice can be viewed as bound to human powers of deontic reasoning (Cummins, 1998), that is, reasoning about social obligations. It's likely that some such capacities are inscribed in the biologies of all social species, to a greater or lesser extent, and our nearest relatives in evolutionary terms, the higher primates, are certainly capable of sophisticated reasoning in this mode. However, their reasoning seems to be severely constrained by phenomena such as dominance hierarchies in which inter-individual obligations appear to be understood and expressed in terms of relationships such as dominance and subordination within a group. In contrast, human concepts such as justice - according to the jurist H. L. A Hart (1961, p163), that aspect of morality "principally concerned not with individual conduct but with the ways in which classes of

individuals are treated" - are necessarily bound to a degree of flexibility in social interaction manifested (as far as we know) only by humans.

I am not claiming that musicality produces social justice. However, human musicality appears to provide co-ordinative and open frameworks for interaction, maintaining and perhaps forming, the intellectual and social flexibility that is manifested in our capacity for shared intentionality. Musicality does not give rise to social justice, but at an evolutionary timescale it is likely that it has provided space for the emergence of concepts that bear on how humans can, and ultimately perhaps should, interact.

Conclusion

In conclusion, I want to refer to a surprising instance of the open-ness of music and its capacity to provide a framework for non-conflictual social interaction. In a recent book concerned with first contact between Australians and Europeans, Inga Clendinnen notes (2005, p5) that "The Australians and the British began their relationship by dancing together." As she observes, "We don't readily think of dancing as a phase of the imperial process, but... when a fleet of British ships berthed on the east coast of Australia in 1788... a surprising amount of interracial dancing went on". Three days after the fleet's arrival at Sydney Cove, Lieutenant William Bradley encountered a group of Australians whilst charting the harbour. The Australians pointed out a good landing spot, following which the sailors went ashore and, in Bradley's words, 'these people mixed with ours and all hands danced together', an activity repeated on the following day. A painting by Bradley depicting the scene exists in the Public Library of New South Wales; it shows, in Clendinnen's words (ibid., p9), "the British and Australians dancing hand in hand like children at a picnic; that is, dancing in the British style... Furthermore, the pairs are scattered for formation dancing, which reinforces my suspicion that it was the British who took the initiative."

However, the uncommittedness of such encounters could not continue; and as the British attempted to make the Australians conform to their wishes - began to direct, manipulate and manage their behaviours - the divergence between British and Australian cultural conceptions of what constituted appropriate interaction between people became a source of ever more tension and mistrust. This mistrust was deepened by the attitude of Governor Phillip, the commander of the First Fleet. As Clendinnen states (ibid., p36), "he believed these people had no formal rules to live by, and he confidently assumed that his greatest gift to them would be ... the gift of British justice mediated by British law. It would be on deep disagreements regarding the moral foundation of law that his dreams of enduring reconciliation would founder."

Clendinnen's book suggests that the deterioration of the relationships between the Australians and the British, and the consequences of that deterioration over the last two hundred years, derived from a blindness to the imperatives of other cultures. In her words (ibid., p287) "...culture is more than a bundle of legal principles, a matter of going clothed or naked... It is best understood as the context of our existential being: a dynamic system of shared meanings through which we communicate with our own. Because those meanings are rarely made explicit, understanding another culture's meanings is and will always be a hazardous enterprise." Nevertheless, if only for a short time, a medium for social interaction with inexplicitness at its core

enabled members of two cultures separated by more than 40,000 years to know something of each other - or at least, to believe that they could begin to know.

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