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Abstract

In this article I investigate how and why birdsong is regularly excluded from definitions of music. I argue that to claim human exceptionalism for this capacity is highly premature, since so few avian species have been investigated in any depth. A catalogue of objections to the contention that birdsong is music suggests numerous intra- and inter-disciplinary 'disconnects'. I note that the default yardstick of Western art music is pervasive and that many researchers cling to the nature/culture divide despite recent activity framing natureculture as a continuum. I conclude by suggesting that the time has come to abandon our uncritical preference for human capacities and open ourselves (and our respective disciplines) to the possibility of creativity and agency in nonhuman others.

Mots-clés

birdsong, ethology, human exceptionalism, music, natureculture, pied butcherbird, zoömusicology

Résumé

Dans cet article l'auteur tente de comprendre comment et pourquoi les chants d'oiseaux sont systématiquement exclus des définitions de la musique. Elle affirme que revendiquer une quelconque exception humaine pour cette capacité est extrêmement prématuré étant donné qu'à ce jour très peu d'espèces aviaires ont été exhaustivement étudiées. Le catalogage des différentes objections à ce que les chants d'oiseaux soient de la musique suggère qu'il existe de nombreux 'cloisonnements' intra- et inter-disciplinaires. L'auteur note que la mesure par défaut selon les critères de l'art musical occidental est largement répandue et que de nombreux chercheurs se cramponnent à l'opposition nature/culture en dépit de tentatives récentes de définition de la natureculture comme continuum. Elle

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conclut en suggérant qu'il est grand temps pour les chercheurs (et pour leurs disciplines respectives) d'abandonner la préférence aveugle pour les capacités humaines et de s'ouvrir à la possibilité de créer et d'agir pour les espèces non-humaines.

Mots-clés

cassican à gorge noire, chants d'oiseaux, éthologie, exception humaine, musique, natureculture, zoomusicologie

'This is indeed a mystery', I remarked. 'What do you imagine that it means?'
'I have no data yet. It is a capital mistake to theorise before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts.'

(Arthur Conan Doyle, *The Adventures of Sherlock Holmes*)

Is birdsong music? This article weaves together threads from ethology, the cognitive sciences, musicology, environmental philosophy and elsewhere in an endeavor to answer our question. Although I have not theorized it, I have tried to analyze the case carefully.

My research concerns the links between the musicality of the Australian pied butcherbird (*Cracticus nigrogularis*) and that of humans. This article is not conceived as an accounting of the vocal competencies of this or any other songbird species, nor does it aspire to make a comprehensive case for why birdsong is music. (Elsewhere, I have commended the vocalizations of pied butcherbirds, with specific examples of individuals [Taylor, 2008a, 2008b, 2010; Taylor & Lestel, 2011].) Rather, what follows is documentation of the scale of reluctance by many scholars to acknowledge shared musical capacities (even those that are well documented) with nonhuman others, reflection on why this might be, and speculation on the potential results of such thinking.

First, the article grapples with a definition of music (problematizing in particular those efforts that designate music as a hallmark of humankind and rely on the word 'human') and sketches items relevant to the transition from classical musicology to zoömusicology.¹ It then surveys ethology with an eye towards how a partnership with zoömusicology might contribute to a better understanding of songbirds' achievements. Next, an abbreviated interdisciplinary literature review on the vocalizations of songbirds in relationship to human music catalogues a number of erroneous, illogical and conflicting statements, suggesting a regular lack of interaction among researchers both within and between disciplines. Rather than mounting a full campaign to list and correct all errata and inconsistencies in the literature, the article itemizes typical examples in an effort to demonstrate the scope of the communication impasse. The final section deliberates on cultural attitudes, social practices and institutional limitations that promote human exceptionalism and the nature/culture divide.

Musicology: towards a definition of music

Any search for (or attempt to craft) a clear and unmistakable definition of music is fraught with difficulties. First, one must discard or amend all definitions that fail to make the distinction between music and language – and what of poetry, chanting, *Sprechgesang*,

tonal languages and elevated speech? Additionally, although it varies considerably, music of some type is found in all human cultures, so one must take each type into account. Most musicologists agree that the quest for musical universals has come up empty-handed. For example, ethnomusicologist Bruno Nettl concludes: 'If one were ... to make a comprehensive census of all human cultures or culture-units, one would probably find exceptions to all characteristics proposed as universals' (Grove Music Online).

This failure to find musical universals has sent researchers into the cognitive domain, looking for universals in areas such as music perception and cognition. Stewart H Hulse and Suzanne C Page are two such scholars, and they have suggested expanding the search to encompass other species, with the thought that this might lead to insights into the biological roots of music:

Musicians and ethnomusicologists have long been interested in the idea of musical universals, the proposition that features of musical structure are common to the music of all human cultures. Recently, the development of new techniques and new theory makes it possible to ask whether the perceptual principles underlying music span not just human cultures but also other nonhuman species. A series of experiments addressing this issue from a comparative perspective show that a songbird, the European starling, can perceive pitch relations, a form of musical universal. ... Only recently, however, has the possibility been considered that there might be musical commonalities shared on a broader scale, a scale that encompasses species other than humankind. (Hulse & Page, 1988: 427)

I would argue that animal sounds have the potential to illuminate more than perceptual principles – they could also lead to insights into creative practice.

Music integrates diverse domains (cognitive, emotional, perceptual, motor, memory), serves multiple functions and shares key components with other systems, particularly speech (Goehr, 1992; Hallam, Cross & Thaut, 2009; Patel, 2008). Music is not a homogeneous reality residing in 'the music part' of the brain. Parameters such as pitch, rhythm and timbre, for example, get extracted in different parts of the brain and put together later (Bregman, 1990; Terhardt, 1991). Thus, human music's multifunctional nature likely reflects multiple selection pressures, and present-day musical activities may not correspond exactly to earlier uses.

Despite music's complex evolutionary history and unlikely monogenesis, a definition must attempt to connect to the entire musical experience, addressing key questions such as: 'What does music do?' 'Is music a physical, mental, or ideal object?' and 'Is music a language – and if so, what does it mean?' Musicology, however, is notorious for lacking a working definition of its subject. We cannot turn to the discipline's benchmark, the *Oxford/Grove Dictionary of Music*, for a definition; it does not offer one. Instead, we must patch together proposals from diverse sources with competing and inconsistent interests.

Although musicologists have discounted 'universal' in the cliché that music is the universal language, we might pose the question, 'Is music a language?' Cognitive musicologist Catherine Stevens argues that music is not a language, since it 'has no evident, immediate fixed consensual reference' (2004: 25). Similarly, music psychologist Emery Schubert argues that 'while music *can* communicate, it is clearly not a fundamental

function of music, whereas it is a fundamental function of natural language' (2009: 70).² There are a number of nuances in this line of inquiry – for example, music psychologists Siu-Lan Tan, Peter Pfordresher and Rom Harré find music's meaning is 'simultaneously constrained by and extends across cultures' (2010: 298). Distinguishing music from language is not the only challenge and preoccupation.

In their search for a simple declarative sentence to define their subject, many musicologists have found the human cut-off to be compelling: music as a uniquely human activity is a regular proposition.³ Of course, if music is defined as human, this guarantees that only humans make it. The refusal by many of the discipline's elite to include bird-song in the definition of music prompts us to contemplate what requirements a bird's song would need to meet in order to find acceptance as music.

A reasonable definition of music must include 'bad' music as well as 'good', but this is not consistently the case. At least tangentially, many of our definitions concern themselves with works of great masters in the Western art tradition (we take a further look at this later). Some musicologists would withhold the 'music' label from the sonic constructs of 'primitive' *Homo sapiens* (Wallaschek, 1893: 230). Musicology is a social construction. Its objects are set and its meanings are put into circulation according to social values and are chosen and assessed by the power elite. As musicologist Mário Vieira de Carvalho observes: '[I]ike all knowledge, musicology is power. It has reproduced itself within Western culture as a scientific legitimation of the "pure aesthetics" developed in the nineteenth century' (1997: 344).

Musicians are divided on the subject of birdsong. While many would dismiss it as not music, there is a long history of admiration and appropriation of birdsong by some composers (for example, see Mâche, 1992[1983]; Messiaen, 1994–2002; Taylor, 2011). I do not speak here of mere melodic imitation and elaboration, or of 'sonic cartoons' (Feld, 2000: 272). When composers draw on bird vocalizations, they often do so with the conviction that birdsong is more than a primitive commodity in need of full realization by a human. In compositional design, birdsong has been the source in the parameters of melody, harmony, rhythm, gesture, contour, dynamic envelope, formal structure, phrase length (and the balance of sound and silence), scales, repetition, acoustic image, programmatic intent and poetic or psychic inspiration (Taylor, 2011: 21).⁴ French composer Olivier Messiaen proclaimed, '[i]t is probable that in the artistic hierarchy birds are the greatest musicians existing on our planet' (Samuel, 1994: 85).

Ethology and zoömusicology: towards a study of birdsong

Composerly inspiration and appropriation does not equate to formal research. The advent of sonographic analysis allowed ethologists to engage in birdsong studies, although not with a trained ear so much as a trained *eye*. In addition, with the advent of their studies, ethologists left behind terms developed over the centuries to describe and analyze music (terms that even the non-specialist would recognize). Instead, they developed specialist terminology that seems arbitrary and complicated. There is a notable lack of consensus concerning keywords, and the few that have been adopted from the field of music are applied unpredictably. Ethologist KA Shiovitz counted five terms for 'phrase', six for 'note' and 20 employed to describe 'song' units, while suggesting

standard terms to remedy this Tower of Babel (1975: 133). Nearly two decades later, a study reviewing over 80 definitions of 'birdsong' found little agreement in its definition or how to differentiate songs from calls (Spector, 1994), while another called for unanimity of method as it tallied up 28 song-unit identifications (Thompson, Ledoux & Moody, 1994). One looks back to the commonsense advice of biologist Wallace Craig decades earlier, that while no ornithologist had framed a satisfactory definition of birdsong, they all knew a song when they heard one (1943: 169). He went on to proclaim:

One reason why biologists have never successfully defined bird song is that it is not a purely biological concept. In order to develop an adequate concept of bird song, we must make progress not only in ornithology but also in musical esthetics. (Craig, 1943: 172)

Despite Craig's inference that a partnership between ethology and musicology might be in order, musicians by and large have not pursued birdsong studies. Does birdsong research need musicology? My research on the vocalizations of the pied butcherbird includes the first peer-reviewed papers on the species; it embraces both ethology and musicology. I find it imperative to draw on and bring together diverse views in order to unravel questions not likely to be answered by work beholden to only one discipline. I have focused on forming complex descriptions of the musical competences of a number of individual pied butcherbirds, with the most fruitful line of inquiry being the months I devote to fieldwork. Pied butcherbirds are not my laboratory equipment, or even my informants; they are my teachers.

Given the high number of commonalities this species shares with the human sense of musicality, it is an outstanding candidate for the revision of human exceptionalism in several areas (Taylor, 2008a, 2008b).⁵ Meaningful comparisons of cross-specific continuities between humans and pied butcherbirds must include more than sound objects. I have catalogued *activities* such as practicing (where issues of talent and motivation to improve seem pertinent); the processes of composition and improvisation; musical activities for certain hours, seasons, places and situations; singing lessons; vocal contests; and warming up (Taylor, 2008a, 2008b).

To my knowledge, I am the only active field musicologist devoted full-time to a songbird species. In fact, few songbirds have been studied in depth or in situ even by ethologists; much of our scant knowledge is based on several 'white rats' of the bird world (Baptista, 1975: 1). This lack of research is most evident among the sophisticated singers, who breed less well in captivity and whose songs in the wild are problematical for biologists to analyze. However, such a methodology has been developed in the Western musicological tradition, with its notation and analytic apparatus designed to capture and analyze the intricacies of musical structure (Björn Merker, 19 November 2011, personal communication). Therefore, a case can be made for zöomusicologists to participate in connecting the interdisciplinary dots in birdsong analysis, as they could significantly enhance research. Conversely, to leave birdsong out of the scope of musicology is to greatly impoverish that field.

As we will read in the next section, a number of ethologists and neuroscientists, like many musicologists, stop at the species barrier with the assumption that music is an exclusively human domain. There is, however, no unanimity of opinion. Reductionist

views concerning birdsong's strictly functional nature derive not from science so much as from popular receptions of science (Taylor & Lestel, 2011: 77). My engagement with ethologists and neuroscientists has not found them more closed to the marvels of birdsong than musicologists. Neuroscientist Björn Merker writes that the field is far from understanding the nuances of 'emancipated singers', birds who are not bound to a species-specific song template (7 August 2009, personal communication). A number of biologists have written enthusiastically on the musicality of birdsong (Armstrong, 1973; Baptista & Keister, 2005; Craig, 1943; Gray et al., 2001; Hall-Craggs, 1962; Hartshorne, 1953; Sotavalta, 1956). Anthropologist George Herzog asked the question 'Do animals have music?' (1941), replying in the affirmative.

Other scientists attempt to sidestep musical concerns, which is to be expected given the methodological constraints of scientific inquiry and theory building. Nevertheless, a careful reader of the ethological literature will find comments on the apparent aesthetic use of sound by birds.⁶ To date, the inventiveness of songbirds has no explanation, simple or otherwise. As the editors of *The Neurosciences and Music* remind us in their introduction, 'music is made up of much more than what can be measured' (Avanzini et al., 2003: xii).

In this brief survey of musicologists, ethologists, cognitive psychologists, anthropologists and others, we see that academic demarcations are no sure predictors of judgments on birdsong's achievements or to the vote on its admission into the category of music. In these unsettled and irregular circumstances, I would posit that music must be allowed to be in theory what it is in practice – an open concept constantly re-worked and blurred at the edges by its practitioners, including songbirds.

'Facts to suit theories'

My engagement in this section is to illuminate both intra- and interdisciplinary 'disconnects' through an abridged catalogue of objections to the contention that birdsong is music. I have organized the arguments employed to exclude birdsong from the category as follows: (1) erroneous objections; (2) illogical objections; (3) functional objections; and (4) Humpty Dumpty objections. Note, however, that many of the objections are an uninformed, partial, incorrect or contested assessment of *both* human music and birdsong.

1 The erroneous objections

Music psychologist William Forde Thompson writes, 'music is characterized by an almost infinite variety, creativity, and novelty. The vocal signals observed in birds ... in contrast, are *hard-wired* and have limited variability' (2009: 38; emphasis added). Similarly, art and culture anthropologist Ellen Dissanayake concludes that animals do not make art because '[t]he behavior of animals is largely determined by genetically controlled mechanisms, so that their responses are *more or less automatic*' (1988: 119; emphasis added).⁷ Ethnomusicologist Alan Merriam excludes birdsong from culture: '[i]n moving through time, space, and society, man is not unique, but there is one sense in which he is unique, and this is the fact that he has *culture*' (1964: 21; emphasis added).

Of the world's approximately 10,000 bird species, about half are songbirds; the distinguishing feature of these birds (also called Oscines or Passerines) is that they learn their song – they are not 'robots' in their vocal development and output (Kroodsma, 2004: 7.23). This has been suspected for centuries and uncontested for decades. For example, Aristotle observed that birdsong was learned (Fitch, 2006: 182), and, by Darwin's time, the similarities between human and bird music were well enough understood for him to suggest that they are evolutionary analogs (1981[1871]). Konrad Lorenz, Karl von Frisch and Nikolaas Tinbergen founded the field of ethology, which has seen numerous studies confirming that songbirds learn their songs and develop complex song traditions that are culturally transmitted (Lestel, 2001; Mundinger, 1980: 183; Slater, 1986: 94). One need not be a specialist; merely scanning the title of a book or paper on the subject of birdsong would be enough to avoid the above errata.⁸

This extract from philosopher of music Peter Kivy is concerned with syntax in music:

Now there is no harm in saying that we can, at times, hear the noises birds make *as* music – *as if* they were music. But if that is the case, we hear them *as if* they had certain syntactical properties: we hear them as 'melodies', with implied 'harmonic' structure; with 'cadences' and 'direction'; as 'resolving [implicit] dissonances', and the like. And that is alright too, just as long as we remain squarely within the 'as if' mode. For to say we hear bird songs *as if* they had syntactical properties is *not* to ascribe syntactical properties to them, any more than we are describing a monster when we say of someone that it is *as if* he had eyes in the back of his head. However, as soon as we take being able to hear bird noises *as* music to imply that therefore they *are* music, we are saying that they *literally* have syntactic properties; and *that* is a conceptual impossibility. A natural object cannot, as a matter of logic, have syntactic properties, whether it is a bird's 'song' or anything else. (1990: 24–25; emphasis in original)

Describing a songbird as a 'natural object' is highly problematic, unless one includes *Homo sapiens* in the category as well. The intention here, it seems, is to deny a songbird agency. There is no evidence that Kivy has studied birdsong, nor does he cite research that might have influenced his thinking on the matter. The use of scare quotes around words associated with human exceptionalism is an approach Darwin never adopted, since he acknowledged evolutionary continuity (Crist, 1996: 40). Ultimately, Kivy's argument comes to naught, for ethologists regularly credit birdsong with syntax. For example, birdsong biologist Evan Balaban writes: '[t]he songs of many species of passerine birds are made up of acoustic units arranged in a particular temporal pattern, referred to as syntax' (1988: 3657). Likewise, neuroscientists Marthaleah Chaiken et al. confirm that the acquisition of syntactic rules is a distinct process in normal song learning among European starlings (1993: 1076). Kivy's argument might fit equally well in our next category.

2 The illogical objections

We must keep in mind that even in the human domain, music practices (often geographically and historically separated) form a broad church with no known universals, and thus some human music techniques will be unknown in other human music styles. In this

pluralistic scene, we expect some features will be trans-specific, while others might be culture specific or species specific. It would seem entirely illogical that, should a bird's song sound musical to a preponderance of human listeners and resonate with our core values of music but lack one characteristic that is often found in the Western art music of 1850 or in Balinese gamelan music, for example, that that one difference or deficit would be enough to erase the otherwise musical gifts of that species. Musicologist Philip V Bohlman suggests that seeking equivalents in sonic objects usually impedes the discovery of deeper meanings (2002: 7). Nevertheless, this is the type of expectation one regularly encounters. Many of this section's objections can best be refuted if we simply keep in mind how few species have been canvassed; at this point, we cannot say unequivocally what songbirds can and cannot do. (Readers interested in more detailed rebuttals can find additional information in the Notes section.)

Science writer Philip Ball argues, 'there is no indication that birdsong has the *hierarchical structure* of human music ... Birdsong is basically just a string of little bursts of sound: no more than one thing after another' (2010: 23; emphasis added). By human music, Ball refers to the works of Mozart, Beethoven, Schubert, Schumann and Brahms as discussed by musicologist Fred Lerdahl and linguist Ray Jackendoff in *A Generative Theory of Tonal Music* (1983). Their approach is highly contested, in part because it potentially fits only the aforementioned types of composers.⁹

Psychiatrist Iain McGilchrist differentiates birdsong from human music by using as his measuring stick the assumption that only humans can entrain to a beat, as do historian William H McNeill (1995) and neuroscientist Aniruddh D Patel, who writes: '[i]t is an intriguing fact that there are no reports on nonhuman animals spontaneously moving to the beat of music' (2008: 408). Meanwhile, with millions of Youtube 'hits' for Snowball, the dancing sulphur-crested cockatoo, indications were that perhaps the man in the street was well ahead of neuroscience.¹⁰ Once alerted to the avian dancer, Patel designed a set of experiments: recordings of Snowball's favorite song were played to him at 11 different tempos. The bird's response was videotaped, and a subsequent paper confirms that the cockatoo does entrain to the beat (Patel et al., 2009). The case is a rare example of popular knowledge being investigated by and ultimately informing science.

Writing in a similar vein to Thompson, but without the 'hard-wired' error, nature writer Jeffrey Mynott observes that 'formal structures tend to be *less complex* in the case of birds and the repeatable patterns are *not usually sustained* over more than a few seconds' (2009: 176), while Patel singles out 'the great diversity of human music compared to the songs of any given bird species' (2008: 355). It is difficult to know which of the 5000 species of songbirds these writers refer to. Could they be comparing the simplest birdsong to the most complex human music?¹¹ Much popular and folk music is highly formulaic, and many other genres lack complexity in contrapuntal and harmonic realms.

Whenever we speak of music, there is an elephant in the room: namely, the extraordinary importance accorded to Western art music, which makes up a very small class of musical phenomena, although its airs and graces take up a lot of space. The notion of the genre's unsurpassed sophistication and complexity is uninformed and deeply biased. Nevertheless, the cliché holds; the doctrine that Western art music 'is superior to all other musics of the world remains a given, a truism' (Becker, 1986: 341). (One could propose a turnabout list of why human music does not reach the standards of birdsong because in

Western art music the timbre of the individual participants is limited, the rhythm is pedantic, and improvisation is lacking.)

Often the declared yardstick, Western art music also frequently finds itself the *undeclared* point of reference. For example, Tolbert argues that ‘*despite explicit claims to the contrary*, the “music” invoked in most contemporary evolutionary theories is ... either coincident with or defined in reference to Western classical music dating from roughly 1750–1900, as practiced and understood in largely Euro-American contexts’ (2001: 452; emphasis added). Philosopher Dominique Lestel urges comparisons of animal activities to *contemporary* art practices, rather than to classical Western forms of art (2012: 173). He writes: ‘it is a problem that most ethologists who are interested by animal art or animal aesthetics have neither formal training in art nor a deep knowledge of art history. It is even more problematic that such ignorance is not a problem for them’ (2012: 174). Marcel Duchamp’s urinal finds a corollary in John Cage’s controversial composition 4’33” and other contemporary music works. If 4’33” and other challenging works are categorized as music, then we must acknowledge that music nowadays is whatever we say it is.

We encounter a handful of other typical objections. ‘[Music] is not, like birdsong, individualistic in intention and competitive in nature. Everything about human music suggests that its nature is *sharing, non-competitive*’ (McGilchrist, 2009: 123; emphasis added). It seems entirely unreasonable to assume that every bird’s song is a competition and that human music is not competitive.¹² Mynott objects that there is no ‘large-scale coordination: the dawn “chorus” does indeed make a huge impact on us and probably stimulates the birds too, but it is the impact of a swelling combination of individual sounds, not an organised chorus where the voices are interacting in deliberate harmony’ (2009: 176–177). We know that some human music contains no harmony, and not all music is a 100-piece symphony orchestra. For the Kaluli people, no sounds are performed in unison; instead, much like birdsong, their music involves extensive overlapping, alternation and layering (Feld, 2000: 391). And how do we know birdsong is not organized? In the acoustic complexity of the dawn chorus’s crisscross patterns, individual birds compete intensively for the limited broadcasting space and time, and their sonic constructs often seem to work well together. Some assume that only humans practice music (Kinneally, 2008), but animal-behavior researcher Gisela Kaplan insists it is common for songbirds to sing by themselves and to practice (2009: 76).

3 The functional objections

To date, function carries the main explanatory burden of birdsong. The most common objection is that birdsong is not music because birds only sing in order to acquire a territory and a mate, and in this it is seasonal or hormonally driven. The nearly undisputed corollary is that human music is not functional.¹³ We read ‘although animal song may modulate the emotions of its listeners, its sole function is communicative, with no evidence of solo performances, practice or productions for entertainment. Human singing, though clearly communicative, is notably different in that it is characteristically produced for *pure enjoyment*’ (Hauser & McDermott, 2003: 667; emphasis added).

It is unclear why evolutionary biologist Marc Hauser and neuroscientist Josh McDermott cling to the nature/culture divide despite much activity in the field to the

contrary (which we expand upon in our next section). First, there is no reason to consider that function and aesthetics are mutually exclusive. In addition, while male seasonal singing unquestionably occurs in many avian species, Kaplan reminds us that Australian magpie vocalizations do not fit this current conceptualization of song, since in that species both sexes sing throughout the year and one finds 'no specific song for breeding enticements' (2008: 51). In addition, blackbirds and willow warblers develop their song musically long after a mate has been secured, making it difficult to argue other than that the song was developed and sung for its own sake (Kaplan, 2009: 91). Likewise, pied butcherbirds sing throughout the year and deliver their antiphonal song most abundantly and vigorously in the autumn (Taylor, 2008a, 2008b).

Apparently, many writers are not acquainted with or do not concur with the account provided by musicology and music history. As numerous contemporary musicologists have pointed out, although music is supposed to exclude social forces, it is very much entwined with them (see e.g. Agawu, 1997: 302; and McClary, 2007: 92) and has a long history of 'worldly engagements' (Kramer, 2003: 6). Goehr insists that most human music through the ages has been functional (1992).

Some argue that birdsong is not music because it is essentially a male activity – allowing this objection to fit in both our *illogical* and our *functional* list (Hauser & McDermott, 2003: 667; Patel, 2008: 10). This objection throws into question the entire Western canon, men's compositions all of them. On the other hand, as feminist philosopher Lori Gruen suggests: 'the belief that many ethologists have about the dominance of the human male has sometimes influenced the ways in which they have observed and interpreted the behavior of males of other species' (2002: 62). Avian females sing much more than is normally acknowledged (Smith, 1991: 248), and female birds are music critics, assessing what the males have sung (Darwin, 1981[1871]).

Of course, there are those who would argue that birdsong is not the product of higher-order thought. Philosopher Peter Carruthers tackles why, in the final analysis, animal consciousness might not matter much in arguments on evolutionary and cognitive continuities between humans and other animals: 'Since phenomenal consciousness might be almost epiphenomenal in its functioning within human cognition, its absence in animals may signify only relatively trivial differences in cognitive architecture' (2004: 83). If birdsong were music, then we would have to accord birds the stature of musicians; allowing creatures into the hallowed halls would be a blow to Western cultural imperialism.

Many of the objections in this section seem based on glib reductionism of birdsong and human music. The reality is more nuanced and complex. As in birdsong, so too in human music do we find a hybrid of aesthetics and function. Human music 'is inescapably biological and at the same time profoundly cultural' (Cross, 2008: 147). For example, humans affirm their territory, their personal taste, and their group through music, to list just a few of human music's many functions. Musicologist David Huron believes it is a mistake to assume that all structures serve an aesthetic purpose or a psychological function; the auditory scene cannot be so succinctly reduced (2007: 369). Music is about relationships: between sounds, between humans, between birds, and sometimes even between birds *and* humans. Birdsong is functional; human music is functional – but each is more than the rules and functions behind it. Function does not suffice as the sole explanatory tool. Neither machines nor scientists can create a great melody or the

ambiguity that is a hallmark of great works and great performances of music – but I believe some songbirds can, just as some, but not all, humans can.

4 The Humpty Dumpty objections

Humpty Dumpty announces in Lewis Carroll's *Through a Looking Glass*: '[w]hen I use a word, it means just what I choose it to mean – neither more nor less'. Carroll's ironic take on semantics and pragmatics pulls together our last group of objections for why birdsong is not music – simply because the writer says so. In this section, we might refer back to many of our earlier definitions of music, since in most cases no further justification is given. The next examples typify the sizeable Humpty Dumpty category.

Ethnomusicologist Martin Clayton writes: '[b]y "music" we refer to an aspect of human behaviour. ... In terms of the definition above the logical distinctions would be human vs non-human; organized sound vs noise; and music vs language. The first of these rules out birdsong' (2009: 38). We often see undue emphasis on the lack of song in nonhuman primates. Jackendoff states that '[a]lthough many animals have communication systems, no nonhumans have either language or music in the human sense, and in particular there are no obvious evolutionary precursors for either in nonhuman primates' (2009: 196). However, since humans are the only primate species with the specialized cerebral capacity for vocal learning, we cannot study this trait in our closest primate relatives. Instead, we must turn to vocal learners like songbirds. Philosopher and critical theorist Kate Soper argues that, although it is unlikely that animals further than our closest evolutionary relatives would manifest evidence of human-like behavior, nonetheless 'the culturalist would go by the achievement, not by the nature of the beast' (1995: 53).

McDermott and Hauser together maintain that 'the question of whether a trait is an adaptation for music can be rendered moot if empirical evidence shows that the trait is ... shared with nonhuman animals, as they do not make music' (2006: 113). In the midst of uncertain definitions, incomplete statistics and unstudied species, there are some confident enough to rule out ever being surprised by an animal (Lestel, 2007: 15; author translation).¹⁴

Nature/culture or natureculture?

This section is heavily indebted to environmental philosopher Val Plumwood and 'field philosopher' and ethologist Dominique Lestel. In the time of the Enlightenment, Descartes consolidated the nature/culture divide and initiated an extended era of rigid human exceptionalism and 'human hyperseparation' (Plumwood, 2009: unpaginated). Nonhumans were framed as 'binary others' (Soper, 1995: 7). The Western-based concept of a divide became a tenet of science as well as an uncontested cultural and religious assumption and, as Plumwood argues, 'insights of continuity and kinship with other life forms (the real scandal of Darwin's thought) remain only superficially absorbed in the dominant culture, even by scientists' (2009: unpaginated). A nature/culture dualism is nearly invisible in the underpinnings of current Western thought and discursive space.

Ethologists who insisted on the difference between the natural and the cultural in birdsong initially drew lines between calls, assumed to be innate, and songs, which are

learned. They now rely less on the words ‘learned’ and ‘innate’, which imply strict boundaries, and have gradually replaced them with concepts such as an ‘inherited tendency’ (Thorpe, 1958: 557), ‘instincts for inventiveness’ (Marler, 1991: 63), ‘learning preferences’ and/or ‘song templates’ (Marler, 1997: 503), and ‘auditory templates’ (Adret, 2004: 306). Yet, although nature *or* nurture has occasionally modulated to nature *and* nurture, I would argue that the default position of all of the above objections is nonetheless that of a nature/culture dualism.

Comments that credit birds with music do not just trespass onto this constructed divide between humans and nature. Such comments are never far from being tagged as ‘anthropomorphic’ – as making a category error, as using words restricted to humans, as crediting birds with more than we ought. Clearly, naïve, sentimental and erroneous anthropomorphism must be critically assessed and weeded out. For most, the fear of the anthropomorphic label serves as a tough cop on a New York corner. Who is officially authorized to talk about birdsong? Apparently not Len Howard, who immersed herself in the lives and minds of individual birds at her English cottage. In deliberating on Howard’s work, sociologist Eileen Crist writes:

The truths yielded through detached, methodologically stringent, and quantitative analyses of animal behavior will distort the realities of animal life, if such analyses are taken to be exclusive truths, or fruit of a singularly privileged perspective. ... The elimination of particular dimensions of animal life from science is not a consequence of censorship, it is an inexorable result of its methods. (2006: 206)

Ethologist Julian Huxley wrote, in a brief and ambivalent foreword to one of Howard’s two books: ‘Miss Howard will not expect a professional biologist to accept all her conclusions. But they will be grateful for her facts’ (Howard, 1952: 10). Nature is typically framed as a problem in need of empirical information to be gathered, assembled, and analyzed by scientists. The exclusive authority of Western science to make claims about nature, like that of Western art music to make claims about the entire sonic experience, is linked to economic, intellectual and political power.

In the study of birdsong, will ethologists forge a link with alternative ways of knowledge? Will ethologists and musicologists swap stories? Neither science nor art fully serves us by itself. Scholars in the emerging fields of the environmental humanities, such as environmental philosophy, ecocriticism and zoömusicology, challenge science’s power and have the potential to complement its results with different interpretive and analytical methods. Imagining how the methodological models of a genuinely interdisciplinary approach to the question of birdsong analysis might look is only part of the task; how change might be negotiated within current institutional limitations is quite another. But, without change, musicologists will have a difficult time contributing to the study of birdsong: if birdsong is not music, then it will be extremely challenging for them to make a case to study it, lecture on it, apply for grants or be accepted in peer-reviewed journals. Musicologists will be barred or at minimum marginalized.

Another institutional stumbling-block to progressing the study of birdsong is that few species have been studied, but not because researchers are content with the body of knowledge they have obtained from a small pool of songbirds. Rather, the practicalities

of introducing a new species are considerable. For ethologists, matters of time and funding make it nearly impossible for researchers to choose to work on a new songbird species. It is considered a bad, even fatal, career choice (as is allowing a songbird to shift from object to subject or one's unit of analysis to shift from species to individual).

Conclusion

In reflecting on the question 'What does it mean to be human?', we must acknowledge the sway that Western discourses exert on our answer, and concomitantly on any attempt to describe what it might mean to be a nonhuman other. A number of obstacles and resistances inhibit the inclusion of animals within academic disciplines traditionally theorized with an assumption of human uniqueness. Nevertheless, some scholars urge a redrawing of institutional and other boundaries without the impediment of human exceptionalism. Primatologist Frans de Waal is such a scholar. He criticizes the prevalent 'anthropodenialist' approach, arguing that most claims that single out uniquely human capacities do not hold up to scientific scrutiny for more than a decade, 'such as claims about culture, imitation, planning and the ability to adopt another's point of view' (2009: 175). Zoologist Raghavendra Gadagkar, who specializes in social insects, describes how 'in our eagerness to prevent the problem of animal intelligence from becoming a stumbling-block in the acceptance of our theories, I think we all went overboard and ignored the possibility of animal intelligence' (1997: 135), while historian of science Donna Haraway critiques 'the problematic solace of human exceptionalism' (2008: 46).

Environmental philosopher Michael Zimmerman asks '[t]o what extent do ecological problems arise from anthropocentrism and from humanity–nature dualism?' (2001: 1). The stories we tell and the stories we are prepared to believe about ourselves in relationship to songbirds are an opportunity to reconnect not just with nature but also with human nature. Our narratives about songbirds illuminate who we are and who we will choose to become in this time of extinctions and climate change. Plumwood has theorized on the cost of disconnect and denial for our 'basic survival project':

Human-centred culture damages our ability to see ourselves as part of ecosystems and understand how nature supports our lives. So the resulting delusions of being ecologically invulnerable, beyond animality and 'outside nature' lead to the failure to understand our ecological identities and dependencies on nature. This failure lies behind many environmental catastrophes, both human and non-human. (2009: unpaginated)

Whether human dethronement can save the planet remains to be seen, but clearly we are overdue for a rethink of our similarities and differences with nonhumans. The time has come to abandon our uncritical preference for human concerns and instead to be open to the possibility of creativity and agency in nonhuman others. On many topics, to suggest human exceptionalism is highly premature, and any claims of human uniqueness in music (or other domains) must be considered provisional without comprehensive animal research. I believe in the end we will discover that the same tools have been used to build a great variety of structures long thought to have independent histories; some have suggested the term 'deep homologies' (Shubin, Tabin & Carroll, 2009: 818).

In the words of entomologist EO Wilson, 'Every species is a magic well' (1984: 19). Far from being a challenge to the identity of music, songbirds could offer new insights for us, reanimating the art and craft of music making and music analysis. As we move beyond being quite obsessed with ourselves, we see that although we could think of songbirds as distant, earthly and substandard ancestors, we could instead consider them as colleagues (Mâche, 2000: 479) and contemporaries.

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Notes

- 1 French composer François-Bernard Mâche coined the word *zoomusicologie* in 1983 (see Mâche, 1992). Zoösemiotician Dario Martinelli imagines the field as the study of the 'aesthetic use of sound communication among animals' (2002: 7).
- 2 Whether music is considered a language or not, human exceptionalism has an intriguing counterpart in the study of language diversity and its implications for cognition. Neuroscientists Daniel Margoliash and Howard Nusbaum argue for a cross-species approach: 'We exhort like-minded linguists to cast off the remaining intellectual shackles of linguistic speciesism. Research with animals is irrefutably essential to address any claims of human uniqueness' (2009: 459).
- 3 Typical efforts to protect music's notional frontier include: (a) Sessions's 'music is created by human beings' (1974 [1950]: 11); (b) Merriam's '[m]usic sound cannot be produced except by people for other people' (1964: 6); (c) Kolinski's '[m]usic has been created by man' (1967: 1); (d) Harrison's 'non-linguistic sound, when used (with some degree of intention) by human beings' (1977: 30); (e) Blacking's 'humanly organized sound' (1995: 10); (f) Bowman's 'a product of human minds' (1998: 69); (g) Cook's 'humanly generated sounds' (1998: 4); (h) Cross's 'a peculiarly human phenomenon ... quite outside the repertoire of behaviors of other species' (2003: 109–110); (i) Borgo's 'an emergent property of humans attending to organized sounds in time' (2007: 65); and (j) Zbikowski's '[m]usic is a product of human culture and human culture alone' (2009: 99).
- 4 Soundscape recordist Bernie Krause criticizes composers who claim to be inspired by nature, believing they have 'deconstructed the environmental whole and then reconstituted a selection of acoustic elements into a culturally resonant expression, assigning special meaning to a few particular organisms or events' (2012: 145).
- 5 Intriguing questions in need of attention include unison singing, transposition and octave generalization, items regularly indexed as the sole province of humans.
- 6 To mention but a few: (a) 'the song of birds can be regarded as a first step towards true artistic creation and expression' (Thorpe, 1958: 536); (b) [this] 'leaves us to puzzle over the resulting richness and variety' (Catchpole & Slater, 1995: 191); (c) '[s]ometimes it is clear that birds indulge in a process of improvisation, first memorizing and replicating a theme, and then subjecting it to a series of systematic transformations, as though assuaging an appetite for novelty' (Marler, 1981: 92); and (d) 'but the far more complex songs of versatile songsters, the songs of songsters which possess large individual repertoires, sometime appear to be so variable as to dramatically violate the requirement of song invariance for species distinctiveness' (Boughey & Thompson, 1976: 5).
- 7 Dissanayake discounts the fact that many human sonic constructs are also automatic, from player pianos and barrel organs to computer music and CDs.

- 8 See e.g.: (a) Kroodsmas, Miller & Ouellet (1982); (b) Slater (1989); and (c) Nottebohm et al. (1990).
- 9 Musicologist Eugene Narmour challenges ‘the supersummative agencies of tree-structured grammars’ (1990: xi), and musicologist David Lidov terms the concept simply ‘out to lunch’ (1997: 18). Jazz pianist Vijay Iyer argues, ‘because so much musical behavior is nonlinguistic in nature, music tends to challenge dominant linguistic paradigms, which reduce all cognition to rational thought processes such as problem solving, deductive reasoning, and inference’ (2002: 387). He goes on to observe that ‘[t]he fact that groove carries enough weight to override other musical factors in certain kinds of musical experience suggests that the traditional linguistics-based viewpoint does not suffice in describing the entirety of music cognition’ (2002: 388).
- 10 For example, see <http://www.youtube.com/watch?v=N7IZmRnAo6s> and <http://www.youtube.com/watch?v=cJOZp2ZftCw>.
- 11 The brown thrasher’s repertoire can run into the thousands of song phrases (Boughey & Thompson, 1976), while many songbirds develop remarkably large vocal repertoires, such as the nightingale (*Luscinia megarhynchos*), a species that performs more than 200 different types of songs (Hultsch & Todt, 2008: 206). Pied butcherbird nocturnal solo songs, while displaying some elements of the local antiphonal song, are unique to each bird across the continent of Australia and vary annually, providing the musicologist with an abundant and renewing source of data (Taylor & Lestel, 2011: 73). In response to Mynott’s ‘not usually sustained’ assessment, some songbirds are designated as continuous singers, while others are classed as discontinuous (Hartshorne, 1956).
- 12 McGilchrist’s concept of a non-competitive, sharing environment is a romanticized view of human music that ignores the life of actual musicians and the agents, managers, stage mothers, record company executives, club owners and others who populate the highly competitive music industry.
- 13 Typical objections: (a) ‘[t]here are many species (particularly avian) that utter complexly patterned sound in time, in social contexts’, argues professor of music cognition Ian Cross, ‘but that patterned sound is generally tied to specific and non-transposable functions’ (2003: 83); (b) ‘animal songs always advertise the same set of things, including readiness to mate, territorial warnings, and social status’ (Patel, 2008: 355); (c) similarly, cognitive musicologist John Sloboda writes, ‘it is clear that the functions of music for man find no parallel in the animal world; many of the most highly patterned sound behaviours (e.g. bird song) are relatively rigid intra-specific signals of territory, aggression, warning, etc.’ (1985: 18); (d) McDermott and Hauser insist that most human music, contrary to birdsong, is without function: ‘whereas animals almost exclusively sing in the service of territorial defense and mate attraction, humans often do not, and instead employ music in a variety of other contexts, many of which lack obvious functions’ (2006: 114); and (e) Ball echoes, ‘animal “song” is typically non-volitional, but is stimulated by seasonal and hormonal changes’ (2010: 23). One wonders how much ground could be gained in an understanding of songbird capacities without this routine reliance on the words ‘human’ and ‘function’.
- 14 ‘Le cartésien peut être justement caractérisé comme celui qui exclut *a priori* d’être surpris par un animal’ (Lestel, 2007: 15).

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