

## Durham Research Online

---

### Deposited in DRO:

12 November 2019

### Version of attached file:

Accepted Version

### Peer-review status of attached file:

Peer-reviewed

### Citation for published item:

Hamilton, Andy (2019) 'Rhythm and movement : the conceptual interdependence of music, dance and poetry.', *Midwest studies in philosophy.*, 44 (1). pp. 161-182.

### Further information on publisher's website:

<https://doi.org/10.1111/misp.12126>

### Publisher's copyright statement:

This is the accepted version of the following article: Hamilton, Andy (2019). Rhythm And Movement: The Conceptual Interdependence Of Music, Dance And Poetry. *Midwest Studies In Philosophy* 44(1): 161-182., which has been published in final form at <https://doi.org/10.1111/misp.12126>. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for self-archiving.

### Additional information:

## Use policy

---

The full-text may be used and/or reproduced, and given to third parties in any format or medium, without prior permission or charge, for personal research or study, educational, or not-for-profit purposes provided that:

- a full bibliographic reference is made to the original source
- a [link](#) is made to the metadata record in DRO
- the full-text is not changed in any way

The full-text must not be sold in any format or medium without the formal permission of the copyright holders.

Please consult the [full DRO policy](#) for further details.

## RHYTHM AND MOVEMENT: THE CONCEPTUAL INTERDEPENDENCE OF MUSIC, DANCE AND POETRY

### Abstract

*This paper argues that dance, poetry and music are conceptually interdependent in that rhythm is essential to each; none can be understood independently of rhythm. That is, these arts exhibit a conceptual holism – music and human movement are simultaneously conceptualized in terms of rhythmic movement. What I call "sonicism", the idea that music is the sound, is refuted by the non-aural features of music, and the rhythmic nature of dance. The claim of conceptual holism implies that music, poetry and dance belong to an order of movement. This view rests on a humanist philosophical treatment that regards rhythm as essentially dynamic. At least from the theoretical writings of classical Greece – notably Plato's The Laws – movement has been the basic conceptualization of music. In the 20th century, Messiaen defines rhythm as "the ordering of movement", which, he says, is "applicable to dance, to words, and to music. As Pound comments: "music begins to atrophy when it departs too far from the dance...poetry begins to atrophy when it gets too far from music...Bach and Mozart are never too far from physical movement". According to the movement criterion, making and responding to music involves moving rhythmically – bobbing one's head, tapping fingers or feet, gestures such as punching the air or leaping, as well as dancing. The article concludes by placing the discussion in the context of a philosophical anthropological investigation.*

### 1. The conceptual holism of music, dance and poetry

The embodied nature of music-making – more recently described as embodied cognition – has for some time been an established concept in music psychology and musicology.<sup>1</sup> Thus for John Blacking, music begins "as a stirring of the body"; by getting into the "body movement of the music", one can feel it almost as the composer does, he argues.<sup>2</sup> The embodied nature of music-making has taken longer to penetrate the world of philosophy – not unexpectedly, given the latter's Cartesian heritage. Hence the position that I term *sonicism*, that seems to underlie much philosophical aesthetics of music: that music is essentially an aural art. On this view, *music is the sound*; it follows that rhythm is a pattern of sounds and silences – what I call a *static conception*, in that it neglects movement, though not of the passing of time, inherent in any experience of music. The result is a neglect of music's historic connection with dance. Rhythm is a fundamental feature of dance as much as music, and so cannot consist in a pattern of sounds and silences – a less exclusively aural characterization, one in terms of movement, is required.

I argue that dance, poetry, and music are interpenetrating, unified practices and concepts; they form a *conceptual holism*, that is, they cannot be understood independently of each other.<sup>3</sup> They are *conceptually interdependent* in that rhythm is essential to each; there is no hegemony of music over the other arts. Thus Ezra Pound:

---

<sup>1</sup> Embodied approaches in these fields have been strong at least from the early 1990s. See for instance See Baily (1985), Blacking (1973), Clarke (2001) and (2017), Godøy, R. I. (2003), Johnson (1997).

<sup>2</sup> Blacking (1973), 111.

<sup>3</sup> Levinson's interesting discussion of hybrid artforms makes a converse set of claims: "we can recognize traditional opera as a combination of song and drama, shaped canvas as a combination of painting and sculpture, concrete poetry as a combination of poetry and graphics" (Levinson (2011), 28).

music begins to atrophy when it departs too far from the dance...poetry begins to atrophy when it gets too far from music; but this must not be taken as implying that all good music is dance music or all poetry lyric. Bach and Mozart are never too far from physical movement.<sup>4</sup>

There are no societies whose members are brought up to understand music without understanding dance – or vice versa. It would be absurd to claim that dance might have evolved independently of music. The contrary claim might be tempting, because of how modern Western concert music has evolved—but it too would be mistaken. Western music's development of the notated work-concept has tended to undermine the connection with dance – notation allows for experimentation on the page, and certain forms of music have evolved independently of dance. But as we will see, these considerations do not undermine the central claim of interdependence. In their now distinct state, they have comparable artistic status.

I described dance, music and poetry as constituting a conceptual holism. A *conceptual holism* is an equivalence or interdependence between concepts, where none is more basic. I treat concepts as capacities and not representations – to grasp a concept is to have a range of broadly linguistic capacities, grounded in human practices. One cannot acquire the first concept without acquiring the second or subsequent concepts, or manifest understanding of one without manifesting understanding of the other. Thus one cannot understand dance-movement (rhythmic movement) of a body, without understanding or being familiar with music and poetry – a rhythmic sound – and vice versa. The idea of a conceptual holism is neglected in philosophy – yet is exhibited by ranges of fundamental concepts. Plausible holisms include memory and personal identity; proprioception and bodily individuation; belief and assertion; concept and object; intention and action; natural law and causation; right and good.<sup>5</sup> Claims of holisms are non-empirical, and arise from the nature of the concepts themselves. One contrast is with pairs of concepts that exhibit a *one-way dependence*, such as "photography" and "picture". A photograph is a picture, but "picture" is a more basic concept, graspable without understanding "photograph" – as for a long time it was. One might speak of empirical holisms between concepts – contingent associations of ideas, such as morality and religion, often regarded as inseparable. Only proponents of divine command ethics who regard God and goodness as inter-defined – so that God could not command anything other than the good – could treat "good" and "commanded by God" as a *conceptual holism*.<sup>6</sup>

A conceptual holism is a circle of inter-dependent concepts. In the case of dance, music and poetry, as with others, the circle is a wide one, and is not closed. For instance, it involves gymnastics and martial art as well as dance.<sup>7</sup> Indeed, human life is filled with rhythmic activities of all kinds – marching, laboring (work songs), working out in the gym ("Workout Anthems"), rocking a cradle (lullabies) – activities which music accompanies and informs.<sup>8</sup> As Pound's remarks suggest, except at the more static end of the spectrum, as in plainchant, music creates an urge to move in response. Moving in response shows that one recognizes it as music, and recognizes the rhythm.

I will develop the claim of conceptual holism by arguing that music, poetry and dance express an *order of movement* – a conceptual scheme governing human movement. The existence of an order of movement helps explain why music, dance and poetry are

---

<sup>4</sup> Pound (1951), 14.

<sup>5</sup> See Hamilton (2013).

<sup>6</sup> See Hamilton (2013).

<sup>7</sup> Judo began as an art of self-defence that integrated mind and body, and was not originally competitive.

<sup>8</sup> See McNeill (1997).

interdependent practices. What is an "order of movement"? In an earlier article, I defined rhythm as

order in movement, graspable through one or more of the senses, and which tends to express or generate involvement by the person producing or experiencing it; it arises when accents are imposed on a sequence of regular sounds or movements.<sup>9</sup>

This definition echoes Plato's description in the *Laws* of rhythm as "order in movement."<sup>10</sup> The *order of movement* is comparable to the *moral order* – the system of obligations that defines good, right or virtuous relations among individuals and groups in a community. These are autonomous conceptual frameworks, irreducible to the *physical or natural order*. The latter involves the concepts of the physical sciences, and the moral order those of ethics; the order of movement involves the rhythmic and metrical concepts of music, dance and poetry, such as metre, stress and tempo. It governs descriptions of bodily movement as graceful, elegant, dynamic, forceful and so on, but does not govern all intentional movement. Order-in-movement is not just a matter of associated images of motion; as Wittgenstein argued, grasp of a concept is not equated with possession of accompanying images, but involves capacities for linguistic behaviour.

Rhythm is the primordial conceptualization of human bodily movement. As psychologist Mari Jones argues, all human movement is inherently rhythmic: "All human performance can be evaluated within a rhythmic framework".<sup>11</sup> Rhythmic movement is a certain kind of intentional order, distinctive of human bodily movement. Someone can *intend* to walk or dance rhythmically, or can do so without thinking – there is a continuum of intentional and non-intentional. I might be aware of the rhythm of the pump, which is not produced intentionally; or of someone's absent-minded, rhythmic drumming of fingers on a table.

The strongly dynamic understanding of rhythm as order in movement enables one to see why movement in music is not – as many philosophers maintain – merely metaphorical. It is often asserted: How is a temporal phenomenon (music) like a spatial phenomenon (dance and bodily movement) except in an analogical or metaphorical sense? Hence the common Analytic philosophical assumption that *nothing relevant in the music moves literally*, that is, spatially. The objection assumes that music is a temporal and not spatial phenomenon – when in fact it is a performing art, with many spatial dimensions. The assumption here is what – to reiterate – I term *sonicism*, the view that music is essentially and exclusively a sonic or aural art. On this view, the sound is "music itself" – it is forgotten that it is part of human nature to move to music. (Perhaps the view also rests on *acousmaticism*, the view that music is essentially an unseen, auditory—acoustic—art, focused on sounds without reference to the means of their creation.<sup>12</sup> No doubt it also rests on a visual bias that movement must be spatial, and other assumptions about movement that cannot be pursued here.) No reflective individual could believe that music is *exclusively* a sonic art – but when philosophers say "Nothing relevant in the music moves literally", that is what they seem to assume. The falsity of sonicism is shown by the conceptual holism of music and dance, according to which music is a cross-sensory

---

<sup>9</sup> Hamilton (2011). Casey Haskins, in an email communication (2019), questions my most basic framing assumption – as he puts it, "that 'rhythm' (along with cognates in other Latinate languages) denotes a single concept whose most central and philosophically significant instances occur in music, dance, and (perhaps slightly less centrally) literature". In his current work, he is attempting to plot its "sprawling network of usages" – a project that goes well beyond the constraints of the present article.

<sup>10</sup> Plato (2016), Bk 2, 665a.

<sup>11</sup> Jones (1976), 340.

<sup>12</sup> Scruton (2016), 5–13, 22–3, 30–2, 58; Hamilton (2009); Kane (2014), *passim*.

practice and phenomenon. The "in the music" locution implies that performance is a somehow a concomitant of pure music.

Modern developments in the history of Western music also seem to make it believable that it is essentially a sonic art. Through the classical concert phenomenon, music has become more aural; audiences often close their eyes, and avoid moving. A more powerful influence is recording, and Walkman and iPod listening. Most musical listening now occurs privately – or as background muzak. Against that, most pop music is for dancing, and no one could hold that it appeals to the ears exclusively. Consider a parallel view about food – *olfactism* – which holds that its exclusive appeal is to taste. Food has many functions within human culture – friendship, family, ritual, nutrition. All societies take pleasure in food, but in modern times, just as music has become more aural because of the concert phenomenon, perhaps food has become more olfactory, because of the rise of the gourmet.

Sonicism – like the "unique interpretation" account of the musical score, according to which one interpretation is privileged – is so implausible it is hard to see how anyone could believe it. When the view is presented to philosophers, they may deny it. But people are often not aware of the philosophical picture that they assume. It is true that objections to sonicism are now found in the philosophical literature – particularly by writers who argue that perception of music is multi-modal. Thus for Judge, tones move, though their physical components – sounds – do not. Rhythm is not just a matter of sounds; it is not even just a matter of auditory experience. Central aspects of musical experience are multimodal, she argues. Nudds sees a constitutive connection between our capacity to perceive the metrical properties of music and our capacities for bodily movement.<sup>13</sup> This is not the route I will take in criticising sonicism and its effects, however – discussion of the content of perception is problematic, and I focus on listener response rather than perceptual input, and on the connection with dance.

To claim that music, dance and poetry are integrated practices, is to reject sonicism. Music is essentially perceivable but not essentially auditory – or at least, not essentially aural. A deaf person is familiar with music because they feel it; low frequency soundwaves hit the body and create somatic musical experience. Profoundly deaf percussionist Evelyn Glennie plays barefoot to feel the music, and taught herself to respond with parts of her body other than her ears. At the risk of stating the obvious, Freeman comments that "Music as sound appeals to the ear, but making and appreciating it involve the entire body through the somatosensory and motor systems of the performer and the active audience".<sup>14</sup> Nonetheless, the claim that "Rhythm could exist without there ever having been music or sound" is inconceivable, or senseless. Without rhythm, dance becomes "movement art", just as without rhythm, music becomes non-musical soundart.

To say that there is a fundamental *order of movement* governing music, poetry, dance and bodily movement, is to say that hearing music as movement is a fundamental way of experiencing and conceiving it. Scruton attempts to acknowledge this fact by postulating a *necessary* metaphor; Lakoff and Johnson acknowledge it through the distinct notion of a *conceptual* metaphor.<sup>15</sup> Thus Scruton argues that our sense of musical movement depends on "an irreducible metaphor...associated with...the metaphor of life. In hearing the movement in music we are hearing...life conscious of itself".<sup>16</sup> A metaphor involves projection from one domain of discourse to another. But where these domains have autonomous status, I would argue, a metaphorical account is incorrect. Given the order of

---

<sup>13</sup> Judge (forthcoming 2019); Nudds (forthcoming 2019).

<sup>14</sup> Freeman (2000), 420.

<sup>15</sup> Lakoff and Johnson (1980, rev. 2003).

<sup>16</sup> Scruton (1997), 52, 353.

movement-in-sound, autonomous from the physical order, the human body is not the source of a metaphor of musical movement, as Lakoff and Johnson, and Scruton, suggest; rather, music and human movement are jointly conceptualized in terms of rhythmic movement.

Bodily movement is not the source of the metaphor, because it exhibits the very thing that needs explaining, viz. rhythmic movement. To describe a tree as a human body swaying is to attribute properties of the human body (the metaphor's origin) to the tree (its target). But hearing musical rhythm does not only involve experiencing music as behaving like a human body; it also involves experiencing the human body, the person, as behaving, or moving, musically. Despite his helpful connection of music and dance, Scruton seems not fully to appreciate this fact when he writes that, "The musical phenomena that we group together under the rubric of rhythm have their counterparts in other areas of human activity"—speech, dance, physical labor.<sup>17</sup> He holds that the source of the metaphor of musical movement is bodily movement. My stronger claim is that they share an order of movement, described in rhythmic terms—one cannot understand music without understanding dance, and vice versa.

To assert an order of movement is not quite to say that the music moves literally – a view mistakenly suggested in my precursor article.<sup>18</sup> I now think that this is the wrong way of approaching the issue. As Rachael Wiseman comments, one should say neither that the movement in the music is metaphorical, nor that it is literal:

The question "literal or metaphorical?" can be raised only after it has been specified to which language-game the description "the music moves" belongs. Contrast the everyday and scientific language-games with "solid." Is the table literally solid? Nothing falls through it; but physicists explain that solid things are literally full of spaces between atomic particles. If we are describing the movements of a raindrop down a window, it is metaphorical to describe them as indecisive. A dancer's movements may be indecisive, in contrast, in virtue of her dance involving significant periods of stillness and immobility; this immobility is, in the spatial sense, part of her movement. A performer may have her limbs moved by other performers, while not moving her body.

The order of movement includes motionlessness; the dance itself is indecisive, not the dancer. The question whether the dance is literally indecisive is inapplicable.

However, I do claim that something relevant *does* move literally: musicians and audience move to the music, sharing a rhythmic, dance-like response, that is a function of age, experience and exposure to teaching. This is not a merely causal connection, but a manifestation of musical understanding, involvement and participation – an internal relation between music and movement, as I now argue.

## **2. Rhythm as a human, intentional order of movement**

The dynamic conception of music, poetry and dance that I advocate says that they share an order of movement, viz. rhythm. In examining the relationship of music and dance, therefore, we must explore the concept of rhythm further. Rhythm is both familiar, and enigmatic. To reiterate, rhythm is order in movement, graspable through one or more of

---

<sup>17</sup> Scruton (2016), 61.

<sup>18</sup> Hamilton (2011).

the senses, and which tends to express or generate involvement by the person producing or experiencing it; it arises when accents are imposed on a sequence of regular sounds or movements.<sup>19</sup> The static conception of rhythm, in contrast, regards rhythm merely as *order-in-time* – "merely", because order in movement includes time. A static conception regards rhythm as purely temporal, and not essentially embodied or movement-based – "a repeatable (and typically repeated) pattern of sounds and silences", as Simons puts it.<sup>20</sup> It treats accent as purely physical, neglecting the phenomenon of attack that arises from the human production of musical sounds. Like other proponents, however, Simons resists the description "static": "To call a rhythm a character of a process is not to render it in any way static...because the character concerns a process, taken as it unfolds in time, it is paradigmatically not static, unlike say a graphical pattern".<sup>21</sup>

On the view that I term static, rhythmic movement such as foot-tapping and dancing is a contingent association of, or reaction to, music. Static theorists divorce rhythm and music from the body; on their view, a Cartesian thinking thing could appreciate rhythm. The static conception is a metaphysical one, with no sense of music as a human activity or practice. Thus for Budd, "to hear rhythm – acousmatically – is not to hear imaginatively any kind of spatial movement".<sup>22</sup> He does not say that we never hear rhythm as a form of animation; but for him, movement is an eliminable metaphor.

In fact silences are not essential even to musical rhythm; all that is required is change or discontinuity, which could be effected by shifts in volume, pitch or timbre. Compatibly with a static account, the idea of repeatable pattern can be expanded beyond "sounds and silences" to other sensorial inputs, and thus other artforms than music. More important, rhythm cannot essentially be a sequence of sounds and silences, because this characterisation cannot fit dance. Indeed, because dance is musical, the "sounds and silences" definition is not even adequate as a characterization of musical rhythm. A static conception must imply, implausibly, that music and poetry are the core cases of rhythm, with a merely causal connection with dance.

Movement has been a fundamental conceptualization of music at least since the writings of classical Greece. We have seen that Plato's *Laws* describe rhythm as "order in movement."<sup>23</sup> Hanslick characterizes music as "tonally moving forms," arguing that music presents the dynamic properties of emotional experience, abstracting from emotional content.<sup>24</sup> Messiaen defines rhythm as "the ordering of movement," which, he says, is "applicable to dance, to words, and to music."<sup>25</sup> Finally, Schütz writes that "Breathing is only one example of rhythmical bodily movement. Others are walking, dancing, knocking and many operations of working...rhythm always refers to actual or virtual bodily movements in space."<sup>26</sup> Scruton insists that "we must hear the movement in music, if we are to hear it as music". It is significant that so many of the terms used to describe music involve movement, especially dance-movement: waltz, march, lullaby, rock 'n' roll, sarabande, stomp, swing, thrash, hip-hop.

The dynamic account of rhythm offered here rests on a philosophical humanist conception, that treats music both as a sounding, vibrating phenomenon, and a

---

<sup>19</sup> Hamilton (2011).

<sup>20</sup> Simons (2019 forthcoming), Ch. 3.

<sup>21</sup> Simons (2019 forthcoming), Ch. 3.

<sup>22</sup> Budd (2003), 221-2; Simons (forthcoming 2019). By "acousmatically", Budd means "musically".

<sup>23</sup> Plato (2016), Bk 2, 665a.

<sup>24</sup> Hanslick (1986), 29.

<sup>25</sup> Messiaen adds that the definition is "incomplete," though he doesn't explain why: Messiaen (1994), 67.

<sup>26</sup> Schütz (1970), 21.

performing art or entertainment, internally related to dance.<sup>27</sup> A humanistic conception rejects both abstract Platonism, and the sub-personal standpoint of neuro-philosophy. It stresses the human production of musical sounds by vocalizing, striking, blowing, bowing and so on, privileging the human as opposed to the abstract or the organic. Music's abstractness has been exaggerated, humanists argue; music is a human activity involving the body and bodily movement, and animated by human life. Music is *thinking in sound and movement* – a form that thinking takes, just as language is. It is not, as an abstract conception assumes, a purely intellectual exercise; it is irreducibly physical, bodily and material. Music's abstractness is circumscribed by its status as a performing art. Music is *abstract in form, but humane in utterance*. On a humanistic view, rhythm is essentially a felt, person-level phenomenon – an intentional phenomenon, whose expression we can and often do perceive in various human activities. It is an aspect of the human world.

This is not to claim that all rhythms are humanly-produced, or intentional. A drum machine produces rhythms, and – given these are sampled, and that the machine itself is humanly-produced – these are only indirectly humanly-produced. But human producers of rhythm, and the human practices of music, poetry, and dance in which rhythm is embedded, draw on and incorporate natural sounds, and in the modern era, mechanical and electronic sounds—often regarding these sounds as in themselves proto-rhythmic, or rhythmic. The rhythms associated with music, dance, and poetry constitute an intentional order. Creatures or artefacts that do not have or express intentions can produce only proto-rhythms – a secondary phenomenon.

A humanistic account therefore distinguishes a continuum that runs from non-rhythmic noise, via mere pulse and proto-rhythm, to rhythm in the true sense:

- (1) Chaos or continuum: the sound of rubbish tumbling into a bin-lorry, white noise, a continuous unvarying tone.
- (2) Mere regularity: An electronic pulse with no stress variation.
- (3) Non-intentional "stress": a dripping tap, a horse's hooves, or a metronome, in which stress variation is unavoidable, and from which a pattern of stressed and unstressed seems to emerge or may easily be projected.
- (4) Intentional stress or true rhythm: music, dance, poetry.

Phenomena that fall under (1) are entirely non-rhythmic. It is possible and natural to project a rhythm on to (2) and (3), but – on a humanistic account – these are at best probably proto-rhythmic.

Regular but non- or involuntary movement – the ticcing of Tourette's, Parkinsonian tremor, or indeed a heartbeat – would seem, on a humanistic account, to be at best proto-rhythmic, that is, strictly non-rhythmic but *interpretable* as such. Other proto-rhythmic phenomena include natural rhythms such as waves, and mechanical ones such as trains. Human subjects cannot help projecting rhythm in these non-intentional, naturally recurring patterns of stressed and unstressed sound. To reiterate, a dynamic, humanistic account does not say that rhythmic movement must be intentional movement, or caused by intentional movement. But it does say that rhythmic order is a fundamentally *intentional order*, through which human bodily movement is apprehended – in music and dance. That is, rhythm is order in movement that is fundamentally intentional.

It may be argued that if a human being can produce a rhythm non-intentionally, then surely a galloping horse could do so. Horses, like humans, have an uneven gait – one footfall is louder, if only slightly, than the others – so their galloping exhibits stress and is therefore rhythmic; perhaps, indeed, heartbeat, which is uneven between systole and diastole. Perhaps, since a heartbeat or a horse's gallop naturally and spontaneously elicits

---

<sup>27</sup> There is a scientific dynamic account based on entrainment – see Hamilton (forthcoming 2019).

a rhythmic response in humans, a humanistic account can regard it as strictly rhythmic. The claim would be that certain natural rhythms are naturally aurally parsed in a certain way. It is tempting to say that these natural sounds are interpretable as rhythms, elicit a rhythmic response, and are aurally parsed in the same way as rhythms, simply because they *are* rhythms. However, a humanistic account cannot regard them as paradigm cases of rhythm. If stress is exhibited, one should be able to ask "stressed by whom?" The answer cannot be "by the horse" or "by the heart".

### 3. The movement criterion of responding to or understanding music

We now return to the suggestion in my precursor article, that music moves in a literal but non-spatial sense. This suggestion, I now believe, is misleading at best. The question is not, "Does the music literally move?" Rather, understanding the music involves literally moving *oneself*. Music is not just sound, and talk of "in the music itself" implies an inadequate sonicist conception. Our movements to music are controlled responses, not (mere) effects, though they involve a pre-cognitive capacity of the body-subject; a paradigm is children's unlearned movement, such as marching to martial music. Hearing the music causes one to want to march around, but people are not just *caused* to move by it; they *respond* to music, there is an internal connection. As Scruton argues, "response" has a logical relation to "call", as in "call and response" – not the purely causal sense of scientific psychologists. Response to a gunshot is causal; responding to music involves a kind of skill, grasping a rhythm or melody – it is a success-word.

The humanist claim is that rhythm is something one grasps—it is meaningful, as Macarthur stresses, and involves cognitive as well as pre-cognitive achievement.<sup>28</sup> It is a matter of comprehension as well as perception – or, given the theory-laden nature of observation, both together. We would not call sequences rhythms if people did not react to them in certain typical ways – such as repeating or developing sequences or related elements of the sequence in different contexts, by drumming, singing, or whistling; moving bodily, in time with the sequence, by dancing, tapping fingers or feet, or gestures such as punching the air or leaping; and noting and demonstrating changes or gaps in the repeated segments of the sequence. Hence *the movement criterion*: someone who says, "I like music, but I never feel like moving in time with it", is someone who seems not to understand it as music. ("Humans move to music" is another natural historical judgment in the sense discussed in section 4.)

It may be objected that there is no such thing as "understanding music" – that musical responses are essentially pre-cognitive, or primarily a matter of feeling rather than understanding. Clearly there is a technical or scholarly musicological understanding of a musical work or performance, and the question arises how important such understanding is – I hold to the democratic view that there is a non-expert understanding of musical meaning that is at least equally important. But that is not the sense of understanding in question here. To reiterate, someone who says, "I like music, but I never feel like moving in time with it" is someone who seems not to understand it *as music* – they do not seem to recognise the performance as a musical one.

To make and respond to music, therefore, one has to be able to move rhythmically. As Macarthur argues, the truth in the intuition of a deep link between music and dance is not that the experience of music *disposes* one to dance – a causal, non-normative claim.<sup>29</sup> It is

<sup>28</sup> In Hamilton, Macarthur et al (forthcoming 2019).

<sup>29</sup> In Hamilton, Macarthur et al (forthcoming 2019).

rather than unless one *can* dance or move to the music – unless one has a *capacity* of following the music, entraining to its rhythm – then one does not know what the music is, and cannot identify it as music. This is a conceptual, normative notion, required by a humanistic account of rhythm. Thus it is wrong to insist that the movement criterion involves a disposition rather than a capacity.

Movement can be overridden by social convention. In classical concerts, silence and decorum are imposed, and tapping one's feet audibly, let alone singing along, are frowned on; in church services outside evangelical and charismatic tendencies, swaying to hymns is discouraged. As Squires suggests, the result of such prohibitions may be called *motionless moving*, analogous to silent speech.<sup>30</sup> At a certain point in history, silent reading became the norm; similarly, motionless moving became the norm for listening to certain kinds of music.<sup>31</sup>

In objection to the movement criterion, aberrant individuals, and aberrant genres of music, may be cited. An example of the former is jazz trumpeter Tom Harrell; blowing and valving movements aside, he is almost immobile when performing, presumably because of his treatment for schizophrenia.<sup>32</sup> Harrell's performance is so striking because our expectation is that the performer will move. But the existence of a medical condition or syndrome invalidates the objection. Such disorders aside, someone who claims to derive pleasure from music, but while not paralyzed in any way, apparently feels no impetus to move with it, is someone who does not understand it. The claim is that "Unless X is disabled, they can move to the music".

The point about normality needs elucidating, in the face of continuing misunderstanding. The existence of severely cognitively impaired humans does not show that moving to music – or language-use – is not a universal human ability, in the sense of being a part of normal human development. Either the human individual is developing towards it, or through some pathology, has lost or never had it. These Aristotelian teleological considerations are often surprisingly neglected – for instance by Colin McGinn, when he queries the claim that "Marginal humans [the very young, senile or brain-damaged] differ morally from animals...because they are members of a species whose *typical* members are full persons".<sup>33</sup> A conception of the healthy, undamaged individual is the criterion not for statistical typicality, as his account implies, but for normality. A normal human is not like a typical car with automatic drive (which uses more fuel, for instance) or a typical Durham student (who comes from a private school).<sup>34</sup> These merely statistical facts are unconnected with purpose, function or nature. (Another way of putting these points is to say that "Humans move to music" is a natural historical judgment, as elucidated in the final section.)

As well as aberrant individuals, there are also kinds of music and poetry to which the movement criterion seems not to apply – those which do not appear to be metric or rhythmic at all. This objection to the criterion is harder to dismiss. Modern Western music tends to be explicitly metric, with clearly articulated beats, but in non-Western music, this model is far from pervasive. Thus children would not move spontaneously to Gregorian chant, as its rhythm is not dance-rhythm – though if asked to move, they might do so appropriately. Plainchant tended to exclude the human body from music, but to say that chant is therefore unrhythmic is to confuse rhythm and metre.

---

<sup>30</sup> Squires, in Hamilton, Macarthur et al (forthcoming 2019).

<sup>31</sup> Ambrose in the 5th century is the earliest known silent reader. When Alexander the Great in the 4th century BCE read a letter from his mother in silence, his soldiers were bewildered (Manguel (1996), pp. 42-3).

<sup>32</sup> Despite this condition, he can communicate his artistic vision to fellow-musicians and audiences.

<sup>33</sup> McGinn (1996), 40.

<sup>34</sup> This Aristotelian argument is found in Lear (1988), Ch. 5, and Megone (1998).

Such music is sometimes described as "freely rhythmic", but the description is misleading. Music and poetry almost always exhibit a basic pulse, if only implicitly. One might regard "free rhythm" as involving a flexible beat or – to borrow a term from Western art music – rubato, a slowing down or speeding up relative to a basic pulse or pulses. (*Rubato*, briefly, is the expressive alteration of rhythm or tempo.) There is thus in all music at least a short-term sense of pulse. Plainchant, while almost without stress, reveals subtle and complex rhythmic organization. There are points of repose and movement, and performers inevitably impart a minimal propulsion; a series of plateaux create a kind of rubato against a basic pulse or pulses. Monks often walked while chanting, and there is movement to the breath, rising and falling. Like folksong, plainchant is strongly influenced by speech rhythm. Prosody – the patterns of stress and intonation in spoken language – is more variable than musical metre; in speech and oratory, pulse varies. Analogous arguments to those concerning free rhythm in music apply to modernist free verse, or postmodern dance. The claim of minimal propulsion accommodates "free rhythm" with a dynamic account.

#### 4. The philosophical anthropology of music and dance

I conclude by placing my discussion in the context of a philosophical anthropological investigation of pre- or non-modern societies. It is tempting to describe the unity of music, dance and poetry as a feature of *early* or *traditional* societies. But there is no clear definition of such societies; these are terms used in the West to refer to that which is other to us. Indeed, music, dance and poetry are integrated in many European cultural practices; they could be separated if necessary, but would not ordinarily be. My claim is therefore the more specific one of a *pre- or non-modern unity*, separated through the modern Western system of the arts. It is Western art music and the cultures and technologies that it has influenced, that has promoted sonicism.

The appearance of a *modern system of the fine arts* was analysed by Paul Kristeller in his 1950 article. For him, the Western system of the five major arts – painting, sculpture, architecture, music and poetry – did not assume definite shape till the 18th century, even though its ingredients went back to classical, medieval and Renaissance times: "classical antiquity left no systems of elaborate concepts of an aesthetic nature, but merely a number of scattered notions and suggestions that exercised a lasting influence".<sup>35</sup> Kristeller's thesis commands wide but not universal support, and implies that the Greek term *techne* (Latin *ars*) does not distinguish between art and craft, in the modern senses of these terms, but embraced all kinds of human activities which would now be called arts, crafts or sciences.

Dance, music and poetry therefore had a pre- or non-modern unity. The account of this unity presented here is distinct from but compatible with non-reductionist evolutionary theories – and contradicts empiricist accounts. My account of conceptual holism and an order of movement rests on a non-empiricist standpoint of *philosophical anthropology*. One essential contrast is with non-philosophical evolutionary theory. It is often argued that language is the original music – that the fundamental root of music is poetry, and speech rhythm is the common root of both dance and music. Evolutionary theorists have focused on such discussions. One influential discussion is Mithen's *The Singing Neanderthal*, which develops an account of the innateness of music that assumes, like standard views of the innateness of language, that it is universal across historically

---

<sup>35</sup> Kristeller (1990), p. 172. By "aesthetic", I believe he means "artistic".

unconnected cultures. He argues that language and music co-evolved from a music-like protolanguage, where pitch contour and rhythm were more important than in later human language. The main purpose of this proto-language was to communicate the speaker's emotional states; selection moulded it into human language, and human music. One may regard Mithen's view as speculative, but it is not crudely reductionist. At least, I take it that he does not hold that a scientific explanation of the development of music is all there is to understanding music, or that a supposed innate passion for opera is all that needs to be said about *Parsifal*.

Notoriously, Fodor tried to refute evolutionary biologists on their own scientific grounds. He argues that it is "a perfectly plausible working hypothesis that our interest in music belongs to our human nature". (In fact this is more than just a "working hypothesis", but a conceptual truth.<sup>36</sup>) But he then argues that "traits that can't pay their way in contributions to fitness are sooner or later selected out"; if a trait is genetically carried, it does not have to be adaptive in evolutionary terms:

if a kind of creature is pretty fit overall, there may be room for it to acquire traits that don't themselves contribute to its fitness; or, indeed, traits that militate against its fitness. A passion for opera, for example.

That seems unlikely. Traits that were adaptive for one evolutionary reason might continue to exist for another, as a result of exaptation; the original evolutionary basis for the development of language and music may not be the present reason why linguistic and musical ability contribute to reproductive success. But Mithen and Fodor are arguing about scientific hypotheses, whereas my focus is on conceptual truths, for which the evolutionary history of homo sapiens is irrelevant.

My concern is with truths that apply to all persons, philosophically defined. Thus I would echo Bernard Williams:

it is not...human cultural practices that are explained by natural selection, but rather the universal human characteristics of having cultural practices... It is precisely the fact that variations and developments in cultural practices are *not* determined at an evolutionary level that makes the human characteristic of living under culture such an extraordinary evolutionary success.<sup>37</sup>

Thus it may be part of what it is to be human to develop culture, even though particular culturally developed abilities are not part of human beings' natural, biological endowment. Still, it will be argued, there is an evolutionary account to be had, which prioritises language, or music, or a music-language hybrid – surely that is relevant to a philosophical treatment of the relation of music and dance? Perhaps – though I do not see my account resting on evolutionary considerations. Certainly I do not privilege evolutionary science over other disciplines – that would be "biologism", a variety of scientism.

Rather than resting on evolutionary theory, my position expresses a non- or anti-empiricist *philosophical anthropology*. This is a Wittgensteinian standpoint defined by Peter Hacker, for whom philosophical anthropology is "the investigation of the concepts and forms of explanation characteristic of the study of man". These concepts, he argues, do not belong to a theory like those of the physical sciences: "use of many of these concepts...itself moulds our nature as human beings, as concept-employing, self-

---

<sup>36</sup> Fodor (2005), 28-29.

<sup>37</sup> Williams (2008), 188.

conscious creatures".<sup>38</sup> In contrast to contemporary anthropology, philosophical anthropology is concerned with human universality more than diversity. It is armchair speculation, not anthropological participant-observation, though it draws on the latter – philosophy, not anthropology.

Among the claims of philosophical – as opposed to empirical – anthropology is that in pre- or non-modern societies, music, dance and poetry were interpenetrating, unified practices and concepts. Empiricists would say that anthropological evidence for their interpenetration is overwhelming – but is this a matter of evidence, or a fragment of a conceptual scheme? As Wittgenstein argues in *On Certainty*, there are some propositions for which it makes no sense to ask for empirical evidence, yet which are not analytic or logical truths. These are groundless or framework propositions that reveal, and rest on, the connections between concepts. Scientistic empiricism holds that all genuine propositions are based on evidence, and none are genuinely conceptual. According to philosophical anthropology, in contrast, there are genuinely conceptual propositions; any attempt to gather evidence for these will presuppose the application of the concepts in question, and so would be redundant.

"Music, dance and poetry are interpenetrating practices" belongs with the groundless propositions of *On Certainty*. These propositions *seem* to be empirical, Wittgenstein holds, yet turn out not to be; they are empirical neither in the metaphysical sense of *factual or contingent*, nor in the epistemic sense of *liable to be supported by evidence*. Unlike ordinary empirical propositions – "The River Wear is in flood", "It was sunny yesterday in Durham", "The boss is off work because of illness", "There's no cheese left in the fridge" – they are not normally open to doubt. Rather, groundless propositions function more like a kind of framework within which genuinely empirical propositions operate. Wittgenstein compares them to a riverbed, which must remain in place for our linguistic and epistemic practices to flow smoothly; he also likens them to the hinges of a door, which must remain fixed for language to function. For this reason Wittgenstein suggests that they make up what he calls a *world-picture*, a body of often unspoken and unanalysed beliefs that forms the basis of an individual's or society's belief-system; as he puts it, "the inherited background against which I distinguish between true and false".<sup>39</sup> Wittgenstein's suggestion is that, unless these propositions are accepted, the "game" of empirical enquiry cannot be or is not being played.

I would argue that at least some of Michael Thompson's *natural historical judgments* – Aristotelian propositions of a tenseless human nature – belong with the groundless propositions of *On Certainty*.<sup>40</sup> It is in human nature to take pleasure in music, dance and poetry; and to have funerary practices. One cannot conceive of a society without these, so it is not an empirical claim that society has them. There are versions of natural historical judgments that apply to every species. "Bears hibernate" is an example. It contrasts with empirical judgments such as "All bears hibernate" or "Some bears hibernate" – or "All human societies have music". When things go wrong, some bears do not; but to qualify the claim, making it "Bears are inclined to hibernate", introduces empirical content in the wrong place. A bear that does not hibernate is a counterexample to the universal generalization, but not to the natural historical judgment – though in the latter case, we need an explanation of why it does not. Likewise, "Human societies dance" does not have counterexamples, because it is not a universal generalization; the subject term is generic. So a Taliban or deaf society is not a counterexample; but an unexplained large example may undermine the status of "Human societies dance" as a natural historical judgment.

---

<sup>38</sup> Hacker (2010), 4, 5.

<sup>39</sup> Wittgenstein (1969), para 94.

<sup>40</sup> Thompson (2004).

Thompson elucidates natural historical judgments as having the form *S's characteristically are/have/do F, or it belongs to an S to be/do/have F, or this is (part of) how S's live: they are/do/have F*. These general propositions have unusual temporal properties, he argues, considering a particular marine form of life:

Of any individual jelly [you] speak in the usual temporal way. You will judge that it 'is' in some one of these phrases and 'has been' in another...But of *umbrella jelly* as a general kind, or form, of life, you will speak in the first instance completely atemporally [saying] that on its first appearance the thing 'is' an egg, then later it 'is' a polyp, then later it 'is' a medusa...everything is put into a special kind of present tense...

Natural historical judgments, though based on empirical knowledge, are not mere reports of what is always, mostly or even often the case with jellies of this kind. Thompson comments that since the umbrella jelly population has for generations remained more or less stable, only a tiny fraction of their eggs have developed into polyps and then medusas.<sup>41</sup> There is "a reciprocal dependence between judgments about the individual organism and judgments about its form, and also to the correlative connection *that facts* about the individual can bear to *facts* about its form".<sup>42</sup>

While empiricists would regard the concept *species* or *life form* as an empirical concept, for Thompson it is "a pure or a priori, perhaps a logical, concept":

The concept *human*, as we human beings have it, is an a priori concept attaching to a particular life form...Human beings are characteristically in possession of some general substantive knowledge of the human life form which is not founded empirically on observation of members of their kind, and thus not 'biological'.

He comments that

of Martians I may perhaps recognize by empirical study...that they possess the powers of conceptual thought...[But] I, as a human, may reach the same general facts about the specifically human form...by reflection on the logical conditions of particular facts about myself which are not themselves matters of observation.<sup>43</sup>

Among natural historical judgments about human beings, I would argue, is "Humans take pleasure in music, dance and rhythm". Given that my concern is with truths that apply to all persons, philosophically defined, my account may diverge from Thompson's – depending on how biologicistic his account is regarded as. But the issue is a nuanced one.<sup>44</sup>

A further difficult issue is the ethnocentrism of understanding. Concerning propositions of philosophical anthropology such as "*Human societies have music and dance*" and "*Humans take pleasure in music and dance*", it might be asked: Whose concept of music – the Western one? My intention is to give a cross-cultural account, but like ethnomusicologist Bruno Nettl, I assume that a Western concept is intelligible and applicable, through translation, across cultures. I do not advocate essentialism; the concept of music is not determined by its ancient origins. It may evolve in such a way that connections with dance become residual; perhaps then we would say that the concept of music has disappeared. But despite developments in that direction – silent listening

---

<sup>41</sup> Thompson (2004), 50-51.

<sup>42</sup> Thompson (2004), 57-8.

<sup>43</sup> Thompson (2004), 70-71.

<sup>44</sup> Hamilton (2013), final chapter.

and motionless moving that arose with Western concert music from the early 19th century onwards – that is not the present situation. To reiterate, dance remains integral to most forms of popular music, and to many forms that are not popular.

Ethnomusicological and anthropological studies show that many languages do not have equivalent terms to the modern European "music", "musique", "musica" and so on. Inuit and most North American Indian languages do not have a general term for music; in Blackfoot, "saapup" is the principal word, but means something like "singing, dancing and ceremony". Africa languages including Tiv, Yoruba, Igbo, Efik, Birom, Hausa, Idoma, Eggon, Luo or Jarawa have no term for music.<sup>45</sup> These facts may support the claim of integration of music and dance; they certainly show that philosophers must be historically and culturally aware. Philosophers need to know that not all cultures have a term for music; they should also know that the distinction between music and noise may be of modern origin. R. Murray Schafer, composer and writer on soundscape, argues that in the era before urban musical sounds such as church bells and the postman's horn were replaced by mechanical noises, and music moved into the concert hall, music and noise were not distinct categories.<sup>46</sup> High-volume sound, and non-musical noise in general, was rare – examples would be thunderstorms, crowds of pilgrims or mobs, the noise of war, large kitchens with fires. With cultural concepts like art and music, a philosophical investigation must be sensitive to such general historical developments.

In light of these broad historical developments, one can say that all cultures seem to produce the same kind of aural phenomenon – something that sounds to Western ears like music, a kind of sound communication distinguished from ordinary speech – but conceptualize it in different ways. Thus Nettl argues that although many African societies do not have the Western conception of music, "the ease with which many African societies have adapted to the English or French conceptions of and terms for 'music' suggests that the domain exists, integrally, even where no term is available".<sup>47</sup> He describes the prevalence of tones with consistent pitch, and tonal systems using from five to seven tones; all societies have a kind of stylized vocal expression distinguished from ordinary speech – most readily called singing, but also referred to using words that can be translated as chanting, screaming, howling or keening.

Turning to natural historical judgments about humans, one can say that everyone takes pleasure in rhythm, which is broadly involved in human action and activity. Music, poetry and dance appeal to people's spontaneous pleasure in rhythm. This pleasure connects with something deep in human nature, and is shown by the responses of babies. As Aristotle said, the first end of music is giving pleasure; he compares it to sleeping or drinking which provide amusement and relaxation. Music is a natural delight.

The standard view is that one can take pleasure in anything – that there is nothing normative about pleasure. But as Anscombe rightly argues in *Intention*, pleasure is connected with intelligibility; without further explanation, one can make no sense of someone who says that they take pleasure in carrying round a pin. But if someone is asked, "Why are you dancing?" and they answer, "I enjoy it", no further explanation is needed – it is a *tenseless fact* about humans that they take pleasure in rhythmic activity such as dance. A tenseless description pertains to a form of human life; the fact that the explanation terminates in this way, tells us something about what we are as humans. To reiterate, if music's connection with dance disappears, so also, we might say, has the concept of music.

---

<sup>45</sup> Nettl (2001); see also Nettl (1989).

<sup>46</sup> "The string quartet and urban pandemonium are historically contemporaneous", Schafer (1977), 103. See Van Leeuwen (1999), 1.

<sup>47</sup> Nettl (2001), 466.

A society without music would be either devastated, or a specially-created group. An example of the former is the Ik, a nomadic group in Uganda, apparently reduced by drought and famine to a Hobbesian "war of all against all". Turnbull regarded them as having abandoned basic human qualities of "family, cooperative sociality, belief, love, hope and so forth".<sup>48</sup> The Taliban is a less devastated though still tragic example of a society where music is forbidden. But even the Taliban have rhythm in the call to prayer, and in pumping water; a Taliban would presumably not believe that pumping water rhythmically was wrong.<sup>49</sup> A different kind of example is a self-constituted society of amusiacs (or less plausibly, deaf people). *Amusia* is the specific loss of essentially all music processing skills. Sufferers cannot perform simple musical tasks, such as recognizing a tune familiar since childhood, yet have no linguistic or other cognitive deficiency.

The scenario of a society without music could be one with art but not music; or more radically, one without music, art, the aesthetic, ritual, and religion. (Symbolic elements of ritual imply art.) Either seems imponderable. If anthropologists claimed to have found a tribe without music or dance, that would surely change our notion of what "society" means. A society without music seems as inconceivable as one without sport or play, or work, or love and friendship. When anthropologists return with their unexpected discovery, one would at least be unsure what to say. Chimps live in social groups that involve hierarchy and cooperation, but lack music; this is not a society in the richer sense, involving culture and religion. Thus Miller contrasts "human music" with "acoustic courtship" among primates in stable social groups.<sup>50</sup> A society without music is one only in an impoverished sense, such as applies to chimps; my concern is with a richer sense of human society.

The status of the judgment "Music and dance are interdependent practices" is more problematic. But I would still argue that it is a non-empirical proposition of philosophical anthropology, if not a natural historical judgment of the kind that Thompson describes. Arguments against the affinity of music and dance, on the basis that they are now historically distinct, are ineffective. One such argument is that postmodern dance can be separated from music.<sup>51</sup> The phenomenon of dance without music probably originated with Merce Cunningham and John Cage, and many contemporary dance-works have no music or sound, yet certainly exhibit rhythm. The argument appeals to postmodern practice, to show that understanding music is not essential to dance. It shares the form of another appeal to postmodern practice – the argument that conceptual art, and readymades such as Duchamp's "Urinal" that lack craft, show that understanding craft is not essential to art. My response is that "Anything can be art" and "There are soundless postmodern dance-works" are true claims, but their philosophical consequences have been exaggerated. As with readymades and conceptual art, postmodern developments in dance are parasitic on traditional forms. There could not be a artworld of dance that had no connection to music, just as there could not be an artworld of conceptual art or readymades without the modern system of the arts on which it comments – postmodern developments make no sense without these traditional connections. Contemporary philosophical aesthetics overstates the significance of postmodern practices; an artworld

---

<sup>48</sup> Turnbull (1972), 289. His account is rejected as semi-fictionalised by later, more conventional ethnographers – see [www.nytimes.com/books/00/12/10/reviews/001210.10stockit.html](http://www.nytimes.com/books/00/12/10/reviews/001210.10stockit.html).

<sup>49</sup> "They have banned...music-making that involves musical instruments... possibly with one exception...the frame drum -- the duff -- because there are hadiths in which the Prophet...allows [it] to be used" ([https://www.rferl.org/a/British\\_Ethnomusicologist\\_Discusses\\_Talibans\\_Campaign\\_Against\\_Musicians/1753865.html](https://www.rferl.org/a/British_Ethnomusicologist_Discusses_Talibans_Campaign_Against_Musicians/1753865.html))

<sup>50</sup> Miller (2000), 349.

<sup>51</sup> See Durà-Vilà (forthcoming 2019).

consisting entirely of readymades, and a world of soundless rhythm, are equally imponderable.

In this article I have attempted to provide a philosophical account of the inter-dependence of music and dance, by examining their common basis in rhythm. I have also suggested that the concept of a philosophical anthropology is helpful in developing such an account. However, there are many further questions about the relation of rhythm and entrainment, and the possibility of a unified as opposed to disjunctive account of rhythm across different media, that need developing. These must remain material for another occasion.

## BIBLIOGRAPHY

- Baily, J. 1985. "Music structure and human movement." In P. Howell, I. Cross, & R. West eds., *Musical structure and cognition*, 237-258. London: Academic Press.
- Blacking, J. 1973. *How Musical Is Man?* Seattle: University of Washington Press.
- Budd, Malcolm. 2003. "Musical Movement and Aesthetic Metaphors." *British Journal of Aesthetics* 43(3): 209-23.
- Clarke, Eric. 2001. "Meaning and the Specification of Motion in Music", *Musicae Scientiae* 5(2): 213-34.
- . 2017. "Empathic entanglements: Music, motion, dance." In *Music-Dance: Sound and Motion in Contemporary Discourse*, eds. Patrizia Veroli and Gianfranco Vinay, 189-206. Abingdon: Routledge.
- Durà-Vilà, Víctor. forthcoming 2019. "Soundless Rhythm." In *Philosophy of Rhythm: Aesthetics, Music, Poetics*, eds. Peter Cheyne, Andy Hamilton and Max Paddison. New York: Oxford University Press.
- Fodor, J. 2005. "Give me that juicy bit over there", review of S. Mithen, *The Singing Neanderthals*. In *London Review of Books*, 27:19, 28-29.
- Freeman, Walter. 2000. "A Neurobiological Role of Music in Social Bonding." In *The Origins of Music*, eds. N. Wallin, B. Merker and S. Brown, 329-60. Cambridge, MA: MIT Press.
- Godøy, R. I. 2003. "Motor-mimetic music cognition." *Leonardo*, 36(4), 317-319.
- Hacker, P. M. S. 2010. *Human Nature: The Categorical Framework*. Oxford: Wiley-Blackwell.
- Hamilton, Andy. 2007. *Aesthetics and Music*. London: Continuum.
- . 2009. "The Sound of Music." In *Sounds and perception: New philosophical essays*, eds. M. Nudds and C. O'Callaghan, 146-82. Oxford: Oxford University Press.
- . 2011. "Rhythm and Stasis: An Almost Entirely Neglected and Major Philosophical Problem." *Proceedings of the Aristotelian Society* 111(1), 25-42.
- . 2013. *The Self In Question*. London: Palgrave.
- . 2014. *Routledge Philosophy Guidebook to Wittgenstein and "On Certainty"*. London: Routledge.
- Hamilton, Andy, Macarthur, David et al forthcoming 2019. "A Dialogue on Rhythm: Entrainment and the Dynamic Thesis", edited with contributions from others. In *Philosophy of Rhythm: Aesthetics, Music, Poetics*, eds. Peter Cheyne, Andy Hamilton and Max Paddison. New York: Oxford University Press.
- Hanslick, Eduard. 1986. *On The Musically Beautiful*, trans. Geoffrey Payzant. Indianapolis, Indiana: Hackett.

- Johnson, M. L. 1997. "Embodied musical meaning." *Theory and Practice*, 22, 95-102.
- Jones, Mari R. 1976. "Time, Our Lost Dimension: Toward a New Theory of Perception, Attention, and Memory." *Psychological Review* 83(5), 323-355.
- Judge, J. 2019. " 'Feeling the Beat': Multimodal Perception and the Experience of Musical Movement." In *Philosophy of Rhythm: Aesthetics, Music, Poetics*, eds. Peter Cheyne, Andy Hamilton and Max Paddison. New York: Oxford University Press.
- Kane, Brian. 2014. *Sound Unseen: Acousmatic Sound in Theory and Practice*. Oxford: Oxford University Press.
- Kristeller, P. 1990. "The Modern System of the Arts." In his *Renaissance Thought and the Arts*, Princeton: Princeton University Press, 163-227.
- Lakoff, George, and Mark Johnson. 1980, rev. 2003. *Metaphors We Live By*. Chicago: Chicago University Press
- Lear, Jonathan. 1988. *Aristotle: The Desire to Understand*, Cambridge: Cambridge University Press.
- Levinson, J. 2011. "Hybrid Art Forms." In *Music, Art and Metaphysics*, Ch. 2. Oxford: Oxford University Press.
- London, Justin. 2012. *Hearing In Time: Psychological Aspects of Musical Meter*. New York: Oxford University Press, 2nd edition.
- Macarthur, David, contribution to Andy Hamilton et al forthcoming 2019. "A Dialogue on Rhythm: Entrainment and the Dynamic Thesis". In *Philosophy of Rhythm: Aesthetics, Music, Poetics*, eds. Peter Cheyne, Andy Hamilton and Max Paddison. New York: Oxford University Press.
- Manguel, Alberto. 1996. *A History of Reading*. New York: Penguin.
- McNeill, W. H. 1997. *Keeping together in time*. Cambridge, MA: Harvard University Press.
- Megone, C. 1998. "Aristotle's Function Argument and the Concept of Mental Illness", *Philosophy, Psychiatry, & Psychology* 5: 3, 187-201.
- Messiaen, Olivier. 1994. *Music and Colour: Conversations with Claude Samuel*. Trans. E. Thomas Glasow. Portland, Oregon: Amadeus Press.
- , 1994. *Traité de Rythme, de Couleur et d'Ornithologie*, Tome I. Paris: A. Leduc.
- Miller, Geoffrey. 2000. "Evolution of Human Music through Sexual Selection." In *The Origins of Music*, eds. N. Wallin, B. Merker and S. Brown, 329-60. Cambridge, MA: MIT Press.
- Mithen, S. 2006. *The Singing Neanderthals: The Origins of Music, Language, Mind and Body*. Quezon City: Phoenix.
- Nettl, B. 1989. *Blackfoot Musical Thought: Comparative Perspectives*. Ohio: The Kent State University Press.

----- 2001. "An Ethnomusicologist Contemplates Universals in Musical Sound and Musical Culture." In Wallin et al eds. 2001, 462-72.

Schafer, R. Murray. 1977. *The Tuning of the World*, London: Random House.

Nudds, Matthew. 2019. "Rhythm and Movement." In *Philosophy of Rhythm: Aesthetics, Music, Poetics*, eds. Peter Cheyne, Andy Hamilton and Max Paddison. New York: Oxford University Press.

Nudds, Matthew, and Casey O'Callaghan, eds. 2009. *Sounds and Perception: New Philosophical Essays*. Oxford: Oxford University Press.

Plato. 2016. *The Laws*. Cambridge: Cambridge University Press.

Pound, Ezra. 1951. *ABC of Reading*. London: Faber.

Schütz, Alfred. 1970. *On Phenomenology and Social Relations: Selected Writings*, ed. Helmut R. Wagner. Chicago: Chicago University Press.

Scruton, Roger. 1997. *The Aesthetics of Music*. Oxford: Clarendon Press.

-----, 2007. "Thoughts on Rhythm." In *Philosophers on Music: Experience, Meaning and Work*, ed. Stock, 226-256. Oxford: Oxford University Press.

-----, 2016. *Understanding Music: Philosophy and Interpretation*. London: Bloomsbury

Simons, Peter. forthcoming 2019. "The Ontology of Rhythm." In *The Philosophy of Rhythm: Aesthetics, Music, Poetics*, eds. Peter Cheyne, Andy Hamilton and Max Paddison. New York: Oxford University Press.

Squires, J.E.R. 2019. In Andy Hamilton et al forthcoming 2019. "A Dialogue on Rhythm: Entrainment and the Dynamic Thesis". In *Philosophy of Rhythm: Aesthetics, Music, Poetics*, eds. Peter Cheyne, Andy Hamilton and Max Paddison. New York: Oxford University Press.

Stock, Kathleen, ed. 2007. *Philosophers on Music: Experience, Meaning and Work*. Oxford: Oxford University Press.

Thompson, Michael. 2004. "Apprehending Human Form." In *Royal Institute of Philosophy Supplements* 54, 47-74.

Turnbull, Colin. 1972. *The Mountain People*. London: Jonathan Cape.

Van Leeuwen, T. 1999. *Speech, Music, Sound*. Basingstoke: Palgrave Macmillan.

Wallin, N. et al eds. 2001. *The Origins of Music*. Cambridge, MA: MIT/Bradford.

Wiseman, Rachael, contribution to Andy Hamilton et al forthcoming 2019. "A Dialogue on Rhythm: Entrainment and the Dynamic Thesis". In *Philosophy of Rhythm: Aesthetics, Music, Poetics*, eds. Peter Cheyne, Andy Hamilton and Max Paddison. New York: Oxford University Press.

Wittgenstein, Ludwig. 1969. *On Certainty*. Oxford: Blackwell.

THANKS for comments from Chris Ballantine, David Lloyd, David Macarthur, Lara Pearson, David Spurrett, Roger Squires, Rachael Wiseman, and audiences at Durham, London (KCL), Perth (UWA) and Durban (KZN).