

Wiggins

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### *Memesis: The Origins and Functions of Music*

Musicality must have served important functions in the lives of our ancient ancestors, and research in multiple fields indicates that music both preceded and co-evolved with language in hominids. Looking at philosophical, anthropological, and psychological sources (including comparative studies of songbird behavior), this paper will serve as a layman's overview of music's origins and fundamental, functional role as a mnemonic and emotional device. I will also contrast the western, modernist conception of music with views from current ethno- and psychomusicology, suggesting that multidisciplinary views of music benefit when brought into consilience with one another.

Neuroanthropologist Merlin Donald's 1991 work *Origins of the Modern Mind* offers a compelling argument, drawing from Linguist Derek Bickerton and Naturalist Charles Darwin, that music or "musical protolanguage" preceded symbolic language in our hominid ancestors. That this seemingly-radical proposition was supported so well by work over a hundred years prior is impressive— Darwin had been pushed by human-exceptionalist critics of his theory of evolution to offer an explanation for the origin of language (Fitch 489). In his work *The Descent of Man*, Darwin suggested an evolutionary path from emotional animal calls, to imitative or

“mimetic” sound production, to a musical protolanguage; one that through its memorable cadences and rhythms could be the foundation of shared symbolic communication–

[...] if we may assume that musical tones and rhythm were used by our half-human ancestors, during the season of courtship, when animals of all kinds are excited not only by love, but by the strong passions of jealousy, rivalry, and triumph. From the deeply-laid principle of inherited associations, musical tones in this case would be likely to call up vaguely and indefinitely the strong emotions of a long-past age. As we have every reason to suppose that articulate speech is one of the latest, as it certainly is the highest, of the arts acquired by man, and as the instinctive power of producing musical notes and rhythms is developed low down in the animal series, it would be altogether opposed to the principle of evolution, if we were to admit that man's musical capacity has been developed from the tones used in impassioned speech. We must suppose that the rhythms and cadences of oratory are derived from previously developed musical powers. (Darwin 1420)

Having suggested survival traits of music, Darwin has also firmly placed musical vocalizations before symbolic language in human evolution (Fitch 494). Donald clarifies some of Darwin's ideas in light of modern research–

In modern terms, Darwin was suggesting that the first aspect of voice control to evolve was prosody, not phonetics. Prosody is basically the background modulation of the voice during speech; it forms an "envelope" of emphasis and emotion around words,

and its exaggeration is the basis of chanting and song. Song is difficult to define outside of a particular culture, but it is possible to broaden the definition to include almost any cadence or modulation of the vocalizations available to early hominids. (Donald 39)

Darwin and Donald both tie the evolution of this prosody to changes in the brain size in these human ancestors rather than changes in vocal anatomy (Donald 7, Darwin 235). With larger brains, our ancestors would have greatly increased memory capacity, and with increased cortical volume, the perceptual systems of these creatures could become more complex. A fundamental difference in respect to the memory systems of humans and other primates is the ability to recall memories without sensory-motor prompting (Tolbert 88, Roederer 352). The memory activating potential of musical vocalizations and accompanying body movements could have served as a meta-linguistic “bookmark” for the activation of memory and served as a tool for dealing with greatly expanded memory potential. Elizabeth Tolbert offers a high-level summation of this complex idea in Donald’s work in her article “Music and Meaning: an Evolutionary Perspective”–

Donald hypothesises that the ability to plan and execute one's own motor actions can provide a substitute for immediate context by using the body itself as the "missing" contextual cue, thereby placing memory under voluntary control. Through displacement of the here and now, mimesis moves representation from the indexical level to the symbolic threshold. (Tolbert, 87)

Darwin makes comparisons between prosody in humans and birdsong. Teaching behavior, wherein individuals from bird species with specific songs must learn from adults, were observed as early as Aristotle (Berwick and Chomsky 1). Songbirds raised in isolation who do not learn the appropriate songs are, as a result, ineffective at mating. In this example we can see how vocal imitation could be sexually selected in a species. In humans, protolanguage could have been sexually selected for a number of reasons. As to the assertion that this musical prosody preceded symbolic language that both Donald and Darwin champion, Darwin's primary reasoning was that music would not have served function if language had already evolved—

Darwin raised another important point about the order of succession; to put it simply, if speech had appeared before rudimentary song, what additional biological advantage would song convey? There are very few, if any, ideas or feelings that cannot be conveyed by means of symbolic language. Rudimentary song, even in modern society, appears in the context of emotions: love, praise, hate, pride, nationalism, rage, sadness, fear, bliss. But words can also express and produce emotions. It is not easy to find a good reason why song should have been adopted as a separate communication faculty if language had appeared on the scene first. The reverse, however, is not difficult to justify: language is a very clear improvement on rudimentary song as a system of communication. (Donald 39)

Juan Roderer proposes that attention to musical patterns begins in-utero, and primes infants for learning language. The cortical, pattern-matching process at work during the apprehension of

music, supported by emotional responses of the limbic system, connect music to learning and memory–

The motivation to analyze individual musical tones and chords, to discover symmetries and regularities, to extrapolate, predict, interpolate, and to tackle with the surprise of sudden change all may lead to emotional elements of music, especially those of instantaneous or short-term character, such as those related to the subjective sensations of timbre, consonance, and sense of return. These emotional elements may be manifestations of limbic rewards in the search for phonetic or phonemic content of sound. On the other hand, the motivation to identify long-term temporal structures of sound may be related to the instinctive search for logical organization and grammatical content of acoustical signals. (Roderer 352)

Roderer's suggestion that music apprehension primes the human brain for learning language doesn't necessarily presuppose that symbolic language preceded music– It can also suggest that the both language and a capacity towards music co-evolved alongside one another. Studies of musical and verbal aphasias associated with brain damage show that different parts of the brain are associated with music/prosody than are associated with language (Patel et al.). The pattern-matching faculties of the human neocortex are inherently predictive<sup>1</sup>, in order to anticipate pattern recognition, we, in a sense, experience our prediction. It is this sensory-motor feedback loop that lies at the root of our mimetic abilities, because the ability to predict a thing is a guide in imitating it. These systems, evolutionarily selected for, would be essentially multipurpose, so

that we might see musical prosody and language functioning in different areas of the brain, working together in various ways and as a result, co-evolving.

Once established, musical capacity would have become an instrumental part of early human culture: work-song, courtship display, hunting ritual, child rearing, lament, and otherwise aligning the emotional responses of crowds—

Music conveys information on emotional states. It can contribute to the equalization of the emotional state of a group of listeners just as a speech may contribute to the equalization of the intellectual state (knowledge) of the audience. Unfortunately, as yet we have no quantitative paradigms to describe emotional states, as we may have regarding the information states related to verbal communication. But the role of music in superstitious or sexual rites, religion, ideological proselytism, and military arousal clearly demonstrates the value of music as a means of establishing behavioral coherency in masses of people. (Roderer 356).

It's music's capacity to reference emotion, calling back to ancient, indexical protolanguage, that helps make it so persuasive and cements its cultural value. Tolbert posits that a function of music, having been the catalyst of all representational thought in humans, was the creation of "cultural truths," (8). That persuasive quality of music could be worthy of suspicion by some post-Socratic philosophers like Plato, who, as Marshal McLuhan noted, was distrustful of prosody —

In the "Republic," Plato vigorously attacked the oral, poetized form as a vehicle for communicating knowledge. He pleaded for a more precise method of communication and classification ("The Ideas"), one which would favor the investigation of facts, principles of reality, human nature, and conduct. What the Greeks meant by "poetry" was radically different from what we mean by poetry. Their "poetic" expression was a product of a collective psyche and mind. The mimetic form, a technique that exploited rhythm, meter, and music, achieved the desired psychological response in the listener. Listeners could memorize with greater ease what was sung than what was said. Plato attacked this method because it discouraged disputation and argument. It was in his opinion the chief obstacle to abstract, speculative reasoning—he called it "a poison, and an enemy of the people." (McLuhan 115)

Plato believed that *harmonia*, the organizing principles of music, were powerful and indicative of underlying forces of order that lie behind the veil of illusion which occupies the senses (Petraki 148), his concerns over poetry were that the persuasive powers of mimesis was used in place of reason in the education of the people. He also took pains to separate numbers from that which is numbered—hence his conception of *harmonia* as being a thing separable from perceived sound, a concept we will see gain a foothold in modernist art, but which was foreign to the existing mystical conception of numbers held by the Pythagoreans, who relied heavily on the perceived qualities of sound to understand its mathematical principles. Nathalie Sinclair, in *Mathematics and the Aesthetic*, writes—

The ancient Greeks, primarily by way of the Pythagoreans, established and celebrated a fundamental affinity between the mathematical and the aesthetic. This affinity was nothing about surface charm or happy coincidences. It had deep roots, integral as it was to the world-view of the Pythagoreans, to their beliefs about knowledge and learning. It closely connected the raw world of sense and experience to the divine world of perfection and beauty. Number was the principle that governed all things, rather than being simply useful for counting or measuring – as modern minds might think, if indeed they stop to consider this omnipresent convenience at all. Through number, one could come to know the world, and through the harmonies found in numerical patterns and in geometrical forms, one could gain access to the clearest and most indubitable essence – the real. (Sinclair and Pimm 1)

Plato and Aristotle can be seen as an interpolative step between an ancient, ritualized interpretation of music, which was highly coupled with gesture and dance, and an atomic version of music as an isolated and arbitrary system, whose motifs, while emotionally evocative, are arbitrary and without meaning. This view was held by some philosophers like Emmanuel Kant, who spoke of the experience of listening to music without words as an empty, hedonic exercise. The prevailing philosophical attitude of his time was that the emotionally evocative powers of music must be coupled with words and themes, as in opera, to harness an otherwise aimless power to a purpose. A backlash against these conceptions of music occurred in modernist philosophers and artists, who championed music for its seeming arbitrariness, seeing that its

form itself was its content, calling back to Walter Pater's famous declaration that, "All art constantly aspires towards the condition of music," –

[...] For while in all other works of art it is possible to distinguish the matter from the form, and the understanding can always make this distinction, yet it is the constant effort of art to obliterate it. That the mere matter of a poem, for instance—its subject, its given incidents or situation; that the mere matter of a picture— the actual circumstances of an event, the actual topography of a landscape—should be nothing without the form, the spirit, of the handling; that this form, this mode of handling, should become an end in itself, should penetrate every part of the matter:—this is what all art constantly strives after, and achieves in different degrees. (Pater 135)

Daniel K.L. Chua relates the conception of "pure" or "absolute" music with equal parts poetry and sardonicism—

To avoid the possibility of contamination, the Romantics removed music from historical reality altogether and enclosed it in its own 'separate world', where its signs could reflect each other within an autonomy so pure that its being discovered itself as tautology: music is music. In this equation, music's purity is self-evident truth; it just is; it needs no historical or external validation; there is nothing extraneous. By circling in its own orbit, music finally discovers its identity as 'Music', and so begins to preen itself of all that is not 'Music', discarding such elements as extra-musical appendages. (Chua 4)

We might, in light of research on the evolutionary origins of music, or supplemented by non-western musical contexts, wonder if this discourse represents a false dichotomy— music, cut free of its historical cultural functions to become a purely aesthetic object— *absolute music*, or music employed as a dimension of total art— *Gesamtkunstwerk*. If the primary quality that we are appraising when we investigate music is its *meaning*, then understanding musical ritual as a means for creating localized, cultural truths should be brought into the conversation. Tolbert argues that in most of the world music is valued for its “extra musical meanings,” such as the embodiment of ancestors and other culturally needed indexes of a social presence (86).

I propose that we understand music in the most general sense as a vehicle for cultural truth because we hear music as the socially meaningful presence of another person. [...] Even though we may perceive musical form, when hearing a musical voice we cannot help but hear more than pure structure. [...] On some level, we glimpse the body behind the voice, a body whose voice refers to the imagined socio-emotional essence of its figurative producer. This voice is not merely an object, but a voice of an intentional being such as oneself, and one that therefore references states of arousal, attention, and emotion. Thus, an encounter with the voice is, above all, an intercorporeal encounter with a social presence, and we bring to it our social, corporeal, and enacting selves. (Tolbert 86) [...] Because music references the possibility of creating cultural truth in the first place, its more direct references, i.e., to a particular social essence, a particular social situation, or a specific style, must necessarily be grounded in local, culturally specific meanings. In other words, music cannot help but be locally meaningful

due to the universal processes of vocal mimesis that underlie human symbolic thought.  
(Tolbert 92)

Some cultures, such as the Igbo of Nigeria, do not make conceptual divisions between dancing, music and singing (the Igbo collectively term these *nkwa*) (Cross 30). The uses of music are deeply rooted in the collective psyches of our cultures, and studies of music that disregard these ancient functions are myopic at best. These rituals evolve with a culture just as the brain structures that give rise to them evolve, and while they may be forgotten or lost, the thalamic emotional rewards of music, the recognized emotional content of it, are powerful remnants of that cultural and evolutionary past. “Mimesis [...] points to the roots of abstract thought in embodied memories of movement as re-enacted through sensory-motor representations,” (Tolbert 89). A deeper understanding of our reactions to even the most seemingly-arbitrary and abstracted musical forms can flow from this biological and cultural origin story.

1. Ideas about the predictive nature of our perceptual systems, which have deep implications for the nature of consciousness, are at the heart of this paper, but supporting research in neurobiology extends well outside of its purview. Research on “mirror neurons” in the cerebral cortex is especially compelling. During my reading I found a few

articles that dealt with various theories of perceptual processing and mirror neurons, including “Being Together in Time: Musical Experience and the Mirror Neuron System,” which did much to tie together what I was reading about music capacity from other disciplines—

Thus, what is exciting about the discovery of mirror neurons, and a homologous system in the human brain, is the idea that the brain does not function as an isolated stimulus-response perception-action machine. Firstly, the brain’s functioning is intimately connected with the body, and secondly, the brain has evolved to interact with and to understand other brains. Properties of the human MNS thus allow us to consider social communication, and more specifically musical communication in a new light—less in terms of pitch/timbre/rhythmic patterns—and more in terms of action sequencing, goals/intentions, prediction, and shared representations. (Overy and Molnar-Szakacs 492)

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