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Times to Fight and Times to Relax: Singing and Humming at the Beginnings of Human Evolutionary History

ABSTRACT

The article discusses the function of music in human evolution and suggests that music initially had a binary form of expression, serving several important adaptive functions of physical survival. These two main forms of expressions were:

(1) Loud and rhythmically-precise organized singing, coupled with threatening body movements, loud drumming and stone throwing. This form was a key factor for **(a)** defending hominids from predators, **(b)** providing them with protein-rich food via aggressive scavenging, and **(c)** strengthening bonds between the group members;

(2) Soft and gentle humming, which was a key factor to allow hominids **(1)** to maintain contact within group, **(2)** to watch out for predators, and **(3)** to relax.

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After the long period of neglect, the scholarly body of works on the evolutionary origins of music is experiencing a rapid and fruitful growth. This process started with the appearance of the collection of articles "The Origins of Music" (Wallin, Merker, Brown 2000) and many publications followed. This article reviews the main existing hypotheses on the evolutionary origins of music, put forward by scholars of various generations: Spencer, 1857, Charles Darwin, 1871, Richard Wallaschek, 1891, Otto Jespersen, 1895, Ernst Newman, 1905, Carl Stumpf, 1911, 1943, Carl Bucher, 1919, Siegfried Nadel, 1930, Curt Sachs, 1943, Miron Kharlap, 1972, John Blacking, 1973, Roger Wescott, 1973, Ivan Fonagy, 1981, Juan Roederer, 1984, Bruce Richmann, 1993, John Barrow, 1996, Dan Sperber, 1996, Steven Pinker, 1997, Nathan Kogan, 1996, Geoffrey Miller, 2000, Steven Brown, 2000, 2003, Bjorn Merker, 2000, Robin Dunbar, 1996, 2004, Ellen Dysannayake, 2000, Francua-Bernard Masche, 2000, William Benzon, 2001, Edward Hagen and Gregory Bryant, 2003, Steven Mithen, 2005, Timothy Justus and Geffrey Hatsler, 2005, Josh McDermott and Marc Hauser, 2003, 2005, Bruno Nettl, 2005, Victor Grauer, 2006, 2007, and Tecumseh Fitch, 2006.

The author propose firstly comparison of the musical behavior of humans and singing animal species to determined whether there are any features that apply specifically to human musical behavior alone.

A few of such unique features are discussed in the article (some of them for the first time).

Humans are the only singing species on our planet that live on the ground. All the singing species known today (avian and humming birds, parrots, whales and dolphins, bats, sea lions and seals, to name some) live in the trees, or in the water. This unique feature of human singing behavior has never been discussed before, and the author suggests that this could be the crucial factor in determining the origins of human musicality.

In order to explain this fact, the author looks at the differences in living conditions on the trees and on the ground. The biggest difference is the ***predator threat in the trees and on the ground***. Trees allow different animal species with different body sizes to live at different heights from the ground, according to their weight. Lighter animals can live higher, on thinner branches of the trees, avoiding contact with bigger (and heavier) predators.

Unlike trees, living on the ground does not allow such differentiation of the living space for the animals according to their body weight, so all the ground animals, from small rabbits to much larger leopards, lions and huge elephants spend all their lives on the same "ground level".

This puts enormous survival pressure on singing behavior of the species living on the ground. It is widely known that singing (and generally loud vocalizations) is very dangerous for animals, as singers are revealing their whereabouts to all potential predators. Unlike ground living species, tree living species do not have to worry about being heard, as most of the predators cannot reach them anyway. Only when the tree-living singing species go down to the ground do they become vulnerable to the attacks of the ground predators. An important fact that confirms this idea is that virtually all birds that spend the day singing and freely

communicating with each other in the trees will stop making sounds when they come to the ground.

The author suggests that this difference between the living conditions in the trees and on the ground must be the reason why, of the more 4500 singing species that populate our planet, most live in trees, a few live in water, and only one species (Homo sapiens) lives on the ground.

In a recent publication (Jordania, 2006, 2007) the author suggested that early hominids started using ***loud rhythmic singing/shouting, accompanied by vigorous threatening body movements and object throwing to defend themselves from predators***. Loud screaming, threatening movements, drumming and object throwing are well-known among African apes when they are confronted with deadly predators or competitors. The power of loud group vocalization is widely known from cases where a large group of unarmed shouting humans can scare away a hungry man-eating tiger from its prey, or when a shouting human group can drive large and dangerous animals towards the intended place.

Tomas Geissmann, following the model of behavior of apes in critical situations, wrote about the possibility of the origins of human singing as a means to scare away aggressors and competitors (Geissmann, 2000), and Bruno Nettl also mentioned the same possibility (Nettl, 2005:265).

Human musical behavior includes another well-known element, unknown among other singing species – ***the presence of the precise rhythm***. Rhythmic unity brought a few new important features into human defensive singing and made it much more efficient: (1) loud singing/shouting is physically louder if it is precisely organized rhythmically; (2) rhythmically well-organized group vocalizations send a strong message to the predator (aggressor, competitor) about the unity and determination of the group to fight; and (3) doing repetitive physical actions in a big group in precise rhythmic unity (working, marching) is an extremely effective way to create a strong bond between the members of a human group. For example, long hours of military drill have proven to be the best way to transform a group of new recruits into a well-bonded and determined group of soldiers (McNeill, 1995). Contemporary study of the use of music by the USA military personnel in Iraq also revealed the tremendous power of loud rhythmic music in preparing soldiers for the combat operation (Pieslak, 2009).

An important addition to the "audio-visual" defense must have been the throwing of various objects at the predator (if the rhythmic shouting/singing could not stop their aggression). Works of William Calvin (1982, 1993) are of special importance in this regard, although Calvin mostly studied object throwing as a means of hunting, mostly neglecting the defensive potential of throwing in hominid prehistory.

With the use of rhythmically-unified loud singing, threatening body movements and object throwing, our hominid ancestors could ***obtain protein-rich food*** as well. The idea of early hominids being mostly scavengers initially came from Louis Binford (1986) and is accepted by many today. The notion of "confrontational scavenging" (Blumenschine, 1986) fits very well with the reconstructed behavior of early hominids.

This method of audio and visual intimidation (including object throwing) brings another important element to an understanding of early hominid behavior and even morphology. This was the ***non-contact method of defense and attack***. This new revolutionary method of confrontation can explain some of the well-known morphological changes during the millions of the years of human evolution (such as the decrease of the size and number of hominid teeth, or obtaining a gentle, sensitive and hairless skin).

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The second part of the article "Times to relax" looks at the evolutionary role of universal and neglected human vocal behavior – humming. The author suggest that human humming was the equivalent of the so called "contact calls" of social animals (Macedonia, 1986, Oda, 1996).

Although contact calls might seem to be a haphazard audio result of the big social group being together, they fulfill few important functions:

(1) when members of the group hear these contact calls, they are assured that they are among kin and that there is no predator threat at the moment;

(2) if any of the members of the animal social group notice anything dangerous in the environment, they stop making the contact calls, stay motionless and start scanning the surroundings. Other members of the group quickly follow suit and soon the whole group is silent, scanning the surroundings in suspicion. After some time, if the animals decide the alarm was false, they resume their activity (for example, feeding) and the low relaxing "humming" sound comes back.

Therefore, it is ***silence*** that is perceived as a ***danger signal*** by social animals. In the same way, the presence of "watchmen's songs" among some bird species also demonstrates that it is silence that signals danger for social species. Therefore, the ostensibly insignificant and haphazard sounds of contact calls (or humming among humans) play an important role for the group, carrying the relaxing message "everything is all right."

There is overwhelming evidence that humming among contemporary humans is the expression of well-being, comfort, enjoyment, agreement. There are people who hum during most of their activities, some hum only sometimes, and others only "sing in their heads" because of social etiquette.

The author suggests that humming is not a recent or haphazard vocal behavior among humans. It has rather been accompanying the social life of our distant ancestors for many millions of the years, allowing them to maintain contact, to relax and to watch out for predators. The "vocal grooming" hypotheses suggested by Leslie Aiello and Robin Dunbar (1993) fits extremely well with this suggestion of the role of gentle group humming for early hominid groups.

Lullabies, one of the truly universal musical genres, could be the remnant of the ancient hummed expression of safety and relaxation. The genetic character of lullabies has been suggested by Josh McDermott and Mark Hauser (2003, 2005).

Besides expressing positive feelings and relaxation, humming and singing can help a person in physical or emotional stress to alleviate negative feelings and to recover. A few of such cases are discussed in the article. Healing songs are another universal (or near-universal) human musical genre. Musical therapy has a direct link to the comforting and re-assuring power of music coming from our prehistory. An interesting case of a person who can stop her own panic attacks with the help of singing is discussed. The well-known English saying "whistling in the dark" is also discussed, as it is based on the widely held belief that whistling or singing in a scary situation (in darkness, in the forest, etc) could help a lone traveler.

As time passes, there is an increasing amount of so-called background music around us. Today we hear music not only at the concerts, major social events or celebrations, but also at plenty of everyday situations: while shopping, in cars, train, buses and airplanes, at political rallies, sporting events, in elevators, etc. Some complain that hearing music in such places, where people do not really listen to the music, is a sign of decline in musical taste. The author suggests that this kind of highbrow attitude towards music is not historically justified, as music might have started to help our ancestors in very practical ways: to defend themselves from predators, to get protein-rich food, to watch out for predators or to relax. Listening to music for the pleasure (particularly at concerts) is a much later phenomenon. In this context the infamous "background music" is the evolutionary continuation of the ancient human habit of humming, and it has the worthwhile purpose of helping humans to feel better, to have a more positive attitude, or to fight the fright of small spaces in the elevators.

At the end of the article author discusses one of the best known adaptive functions of music – sexual attraction of the opposite sex. He suggests that this function seems to be secondary to the other functions of music (defense, obtaining food, relaxing) discussed in this article. Two important features of human music point to this: (1) among most of the singing species that use music to attract the opposite sex, only one sex (usually males) sings, and (2) singing among competing males is understandably solo. In human music, both men and women sing, and singing in groups with precise rhythmic coordination is common. These facts point to the importance of the role of ***cooperation*** (not ***competition***) in the origins of human musical behavior.

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