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

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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 precisely 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 (3) strengthenng 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.

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 "Organs 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 different 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, Tomothy 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 suggests first of all to compare the musical behavior of humans and singing animal species and to observe whether there are any specific features that apply to human musical behavior only.

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 known today singing species (avian and humming birds, parrots, whales and dolphins, bats, sea lions and seals, to name some) live on the trees, or in the water. This unique feature of human singing behavior has never been discussed before, and the author suggests 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 of living conditions on the trees and on the ground. The biggest difference is the ***predator threat on the trees and on the ground.*** Trees allow different animal species with different body sizes to live on different height from the ground, according to their weight. Lighter animals can live higher, on thinner branches of the trees, avoiding contacts 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) are very dangerous for the animals, as singers are revealing their whereabouts to all the prospective 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, they become vulnerable to the attacks of the ground predators. Important fact that confirms this suggestion is that virtually all the birds, who spend all day singing and freely communicating with each other on the trees, stop making sounds as soon as they sit on the ground.

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

In a recent publications (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 the predators.*** Loud screaming, threatening movements, drumming and object throwing is well known among the African ape, when they are confronted by deadly predators or competitors. The power of group loud vocalization is widely known from the cases when a large group of unarmed shouting humans can scare away a hungry men eating tiger from its pray, 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 the 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 rhythmically precisely organized; (2) rhythmically well-organized group vocalizations give a strong message to the predator (aggressor, competitor) about the unity and determination of the group to fight; and (3) doing repetitive physical actions by a big group in a precise rhythmic unity (working, marching) is an extremely effective way to create a strong bond between the members of the human group. As a result, for example, long hours of military drill has proven to be the best way to transform the group of a new recruits into a well-bonded and determined group of soldiers (McNeill, 1995).

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

With the use of the rhythmically united 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 the scavengers initially belonged to Louis Binford (1986) and is accepted by many today. The notion of "confrontational scavenging" (Blumenschine, 1986) fits very well the reconstructed behaviour of early hominids.

The method of the audio and visual means of intimidation (including object throwing) brings another important element in understanding of early hominid behaviour 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).

The second part of the article "Times to relax" looks at the evolutionary role of universal and neglected human vocal behaviour – 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 fulfil few important functions:

(1) when members of the group hear these contact calls, they are assured that they are among the keen and that there is no predator threat at the moment;
(2) if any of the members of the animal social group notices anything dangerous in the environment, it stops producing the contact calls, stays motionless and starts scanning the surroundings. Other members of the group quickly follow the 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 the ***silence for the social animals that is perceived as the signal of danger***. The same way, the presence of the "watchmen's songs" among some bird species also certifies that it is the silence that signals about danger for social species. Therefore, ostensibly insignificant and haphazard sounds of contact calls (or humming among humans) plays the important role for the group, carrying the relaxing message "everything is all right"

There is an overwhelming evidence that humming among contemporary humans is the expression of feeling well, comfortable, enjoyment, agreeing with the conversant. There are people who hum at most of their activities, some hum only sometimes, and some only "sings in their heads" because of the social etiquette.

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

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

Besides the expression of the positive feelings and relaxation, humming and singing can help a person in physical or emotional stress to alleviate negative feelings and to help to recover. Few of such cases are discussed in the article. Healing songs are another universal (or near-universal) human musical genre. Musical therapy has the direct connection 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 attack with the help of singing is discussed. The well-known English saying "whistling at night" 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 traveller.

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, like during shopping, in the cars, during the train, bus or plain travel, political rallies, sporting events, elevators. Some complain that hearing music at such places, where people do not really listen to the music, is the sign of degradation of musical tastes. 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 issues: to defend themselves from the predators, to get a protein-rich food, to watch out for the predators or to relax for some time. Listening music for the pleasure (particularly at the 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 to help humans to feel better, to have 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, food provision, relaxing), discussed in this article. Two important features of human music point to this: (1) among most of the singing species, who use music for the attraction of the opposite sex, only one sex (usually males) sing, and (2) singing among the competing males is understandably solo. As for the human music, both men and women sing, and singing in rhythmically precisely coordinated groups is common. These facts point to the importance of the role of cooperation (not competition) in the origins of human musical behaviour.More precisely,singing wos afactor of inter-group cooperation, and a factor of competition with external forces (predators and rival groups).