On the Origins of Social Behaviour in Culture and Nature

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Established paradigms of sociality: from individuals to groups

Anthropology

In the studies of anthropology, socio-biology and animal behaviour sociality and group identity are often thought to have evolved from solitary existence and individual nuclear families. In anthropology this view was particularly reinforced in the first half of the 20th century by the prominent anthropologist Bronislaw Malinowski. Throughout his ethnographic works and theoretical discussions Malinowski maintained that nuclear family is the foundation of human social units. According to Malinowski, tribes and bands emerged as a result of the unification of individual nuclear families. The paradigm of nuclear family, monogamy and polygyny has been firmly imprinted in scholarly and popular views of human evolution. Similarly, until recently the major paradigm of the development of music has also implied evolution of group singing and particularly, of polyphonic vocal styles, from some earlier stages of monophony and individual singing. This is despite the fact that polyphony and group singing are better suited for and more common in pre-industrial and foraging societies than are monophonic musical forms.

We have similar paradigms in the fields of animal behaviour, according to which sociality and coordinated group behaviour developed from earlier non-social and solitary behaviours. For example, monogamy among the early hominids is thought to be one of the foundations for the development of egalitarianism, social cooperation, and equality (Morris 1967; Boehm, 2012; Gavrilets 2012). The major flaw of this model is that monogamy, polygyny and even polyandry, around which nuclear family and marriage are built, are not the most prominent features of the social organisation of pre-industrial and foraging societies. Many anthropologists and travellers of different times have noted the customary existence of permissive and group sexual unions in societies

across Africa, Australia, South and North America and Oceania. Modern anthropological and evolutionary accounts usually deny the possibility that multiple and permissive sexual unions chronologically preceded nuclear units and the institution of marriage. Marriage and its antipode—multi-sexual union—might have co-existed in most known cultures because they were in the process of transition from multiple sexual system to nuclear family and from sexually inclusive units to sexually exclusive social units.

Critique of the established paradigm

Bacteria and the origins of social behaviour

The idea that sociality emerged among humans from nuclear family units needs a critical examination for various reasons. One reason is that sociality has existed for millions of years before the first vertebrae and mammals emerged. Prokaryotes are the most ancient living organisms. They have only one chromosome. Prokaryotes bacteria show that they are very social creatures, without being sexual, reproducing without the fusion of gametes. Recent studies of prokaryotes show that even the earliest and non-sexually reproducing biological organisms can be highly social and coordinated, involving intimate contact between cells (Stevens et al., 2012, p. 2132). This fact questions the established axiomatic concept according to which sociality developed from solitary or monogamously living mammals. If non-sexually reproducing bacteria had a social life, then we could expect that sexual reproduction emerged from the intimate sociality of non-sexually reproducing organisms which lived for billions of years. Sociality thus did not emerge from small sexual-reproductive units. In fact, sexual reproduction might have evolved from the social interaction of early geological stages, when sex did not even exist.

Multiple sexual-social structures in humans

We need to rethink the monogamy and polygyny paradigm of early humans. In many small societies, which until recently lived by foraging or combination of foraging and farming, the institution of nuclear family and marriage have been very unstable; incidence of multi-sexual unions, on the other hand, has been very high. Non-monogamous social practices are very common among the Amazonian people of South America. The belief in partible paternity is universal in Amazonia and it has been characterised by "nonexclusive mating relationships and various institutionalised forms of recognition and investment by multiple fathers" (Walker et al., 2010, p. 19195). Naturally, the belief is paralleled by multiple sexual relationships, whereby women as well as men have sexual relationships with several partners during the same period of time. Multiple sexual unions were also common in Melanesia (Malinowski 1929), many African societies (Loeb, 1950), Australian Aborigines (Howitt and Fison, 1880; Berndt, 1976), the fact which often puzzled travellers and scholars. Forms of nuclear family are firmly established in all known societies. However, there is one important factor which prompts to question its ancestral origin in human evolution: multiple sexual practices are more common among the foragers or pre-industrial societies than they are in large civilizations, and their share has declined and almost disappeared in the course of civilisation. Such tendency of development points to the possibility that multi-sexual social units might be the earlier forms of human sexuality and sociality.

The pygmy case is interesting in this sense. While it is widely noted that Pygmies have nuclear families, Colin Turnbull mentions the two separate worlds of the Pygmies: the ancient forest world of foraging, and the village world influenced by the advanced farming cultures of the Bantu people. Institutions related to marriage, nuclear family, and monogamy (or polygyny) have occurred more prominently when Pygmies lived in the Bantu villages, but these institutions have been less prominent in situations closely associated with the ancestral forest world. For example, according to Turnbull, interpersonal relationships within a Pygmy band changed when they were with villagers and even when a

lone villager payed a visit to a Pygmy camp. As he pointed out, in these situations, Pygmies "are no longer a single, united hunting band, co-operating closely, but an aggregate of individual families, within which there may even be disunity" (Turnbull 1963, p. 32). Individual families thus seem to be an outgrowth of the village world.

What is the connection between multiple social-sexual structures and group polyphonic singing?

Singing is another reason to think that sociality preceded individual families among the humans. Music of the foragers, whose cultures are closer to human ancestors than are those of large civilizations, is predominantly collective and inclusive. Solo songs and songs of individual concern play insignificant role. More importantly, studies such as Steven Brown's *Evolutionary Models of Music* (2000) and Joseph Jordania's *Why Do People Sing* (2011) examined and demonstrated the ways in which music among the early hominin groups must have served survival needs and helped to create a unified identity. John Blacking (1973) brilliantly showed in his ethnomusicological work among the Africans the role of music in creating shared identity. Jordania proposed a more specific scenario according to which the collective performance of rhythmic multi-part music might have served as a means of self-defence and survival (aposematic functions of music) in dangerous and competitive natural environments of Africa, in times when weapons and articulated speech were not yet developed. Thus, group singing evolved as a strategy of social coordination and via this coordination, as a means of biological survival and natural selection.

Similar suggestions have been made in paleoarchaeology and palaeoanthropology. Shift to terrestrial dwelling, bipedality and reduction in canine size that occurred after the genus homo split from the common ancestor, would have made hominins more vulnerable to predation on the ground. Adaptations to the life on the ground included more dependence on within-group cohesion and the reduction of same

sex agonism, the features noted for Australopithecus Afarensis and Ardipithecus Ramidus (Lovejoy 2009, p. 74, 74e4, 74e5). Increase in cooperative and coordinated behaviours are noted as a key factor in the survival of humans at early stages of evolution (Lovejoy 2009; Cosmides and Tooby 1992). The multi-male, multi-female social organization of early hominid groups is noted in palaeoarcheology as the one which must have preceded the emergence of nuclear family (Foley and Gamble 2009, p. 3268). It is suggested that the last common ancestor of humans and African apes exhibited multi-male, multi-female mating structure, which was combined with minimal male-to-male agonism, and moderate to substantial sperm competition (the latter usually is characteristic of species with multi-sexual mating system) (Lovejoy 2009). Both the group polyphonic singing and the multi-male multi-female social-sexual organization might have been the strategies of survival at the early stages of human evolution.

Sexual-social units and coordinated singing

It might be interesting for the main argument of this article that complex, coordinated forms of group singing and vocalisations seem to be more characteristic of those bird and animal species, which live in multi-male multi-female social-sexual units, and in which vocalisations serve not the purpose of sexual selection but that of intra-group social coordination. In contrast, in those species where only male sings to attract sexual mates, coordinated choruses are not characteristic. For example, non-monogamous Australian magpie and pied butcherbird sing in coordinated choruses while the confamilial pied currawong which breeds in pairs that hold territories only during the breeding season, lacks highly organised duets (Brown and Farabaugh, 1991, p. 270).

In gibbon groups males and females produce different sounds, but the capacity to sing is equal between the two sexes, and vocalizations are not used by one sex to attract the opposite sex during the mating season (Mitani 1988). In fact, females often are sexually active outside of breeding

season, and duets are used for strengthening social bonds within the pair or a small family unit (Geissmann 2000; Barelli et al., 2008). Besides, while until recently gibbons were thought to be an exclusively monogamous species, more recent evidence reveals that gibbon groups may include more than one male and they can be polyandrous (Barelli et al, 2008; Savini et al. 2009; Sommer and Reichard 2000). Therefore, it should not be a surprise that gibbons sing not only in duets as commonly promoted, but in groups of at least three individuals. In the light of recent observations of gibbon social groups of five or six individuals, there is a possibility that gibbon singing choruses might include more than three individuals.

Learning of singing facilitates formation of social unity among the reproductively promiscuous fairy wrens (Greig et al. 2012; Mann et al., 2006). The song is learnt by family members as well as strangers who join the family. Therefore, song of a social father and offspring is closer to each other than the song of genetic father and offspring who are not familiar with each other. According the ornithologist Peter Slater, choruses of the South American fairy wrens serve the purpose of reinforcing territorial security and defence, not unlike the Haka choruses of the Maori of New Zealand. Another example of the use of complex coordinated chorus for a group's unity is the song of Australian pied butcherbird (Janney et al., 2016). Monogamy is not apparent in this species either (http://www.australianwildlife.com.au/pied_butcherbird.html).
Australian pied butcherbirds use both known and newly composed tunes in their chorus songs. Both sexes equally participate in the choruses. Australian magpie also chooses sexual partners freely and is not known as monogamous species (Durrant and Hughes, 2005). Magpie choruses too assist in the creation of social unity and territory defence (Brown and Farabaugh, 1991). While species that feature multiple sexual unions do not automatically imply that they sing in coordinated choruses, it seems likely that the species with coordinated group singing are polygynandrous, i.e. they employ multiple and inclusive sexual unions rather than monogamy or polygyny. The absence of coordinated vocal choruses in our closest relatives—chimpanzees and bonobos—who are also known for their highly polysexual nature, could be due to the

combination of terrestrial and arboreal living environments among these species, unlike humans, birds, or gibbons for that matter. While humans might have developed highly coordinated choruses as an aposematic feature after splitting from the common ancestor of the great apes and hominins, descending from trees, and becoming fully terrestrial (Jordania, 2011), bonobos and chimpanzees might have abandoned choral faculties after splitting from the common ancestor due to the predation risks of loud vocalisations on the ground. This question, however, needs a separate examination.

Conclusion

It has been paradigmatic in biological and social disciplines that sociality and cooperation is a late phenomenon developed from non-social forms and species. Contrary to this paradigm, sociality and group coordination has existed in the earliest monocellular living organisms. Group sexual-social and musical behaviours are characteristic of many multi-male multi-female mammalian and bird species, including humans. The distribution of choral singing in humans also suggests that coordinated behaviour was a major part of sociality at the early stages of human evolution. In addition, evidence from paleoarchaeology and anthropology indicate that practices of multi-sexual unions and beliefs in partible paternity were common. Hence, it seems likely that sociality and group identity among humans is a primeval social development rather than an extension of individual nuclear units.

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