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The evolution of music as artistic cultural innovation expressing intuitive thought symbolically

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Commentary on Savage, P. E., Loui, P., Tarr, B., Schachner, A., Glowacki, L., Mithen, S., & Fitch, W. T. (2020). Music as a coevolved system for social bonding. Behavioral and Brain Sciences

Abstract:

Music is an artistic cultural innovation, and therefore may be considered as intuitive thought expressed in symbols, which can efficiently convey multiple meanings in learning, thinking, and transmission, selected for and passed on through cultural evolution. The symbolic system has personal adaptive benefits besides social ones, which should not be overlooked even if music may tend more to the latter.

Text:

Savage et al. and Mehr et al. (S&M) have put forward an impressive synthesis of evolutionary theories of music and musicality, but overlooked the fact that music is an art. I suggest that the core biological components of human musicality evolved as they did for the other arts: to support the symbolic system, which is important on both a personal and social level. I argue that: (1) the features of music which make them memorable and rewarding are a result of cultural evolution for symbols rather than gene-culture co-evolution; (2) music, like other arts, does not just have social benefits but also personal ones.

The arts encompass a wide range of apparently disjointed media: music, dance, painting, poetry, theatre, sculpture, fiction, etc. One would be hard-pressed to imagine an underlying, heritable cognitive mechanism to produce all, and a "cognitive toolkit" (Savage et al., 2020) may indeed be more likely. Nevertheless, we understand 'the arts' as a valid category. I argue that what unifies these activities is that they (i) express intuitive thoughts symbolically, rendering them meaningful, and (ii) can be accompanied by extraordinary experiences, rendering them significant.

Intuitive thought is considered here as the main cognitive mechanisms with which we process the world around us, but which does not reach conscious awareness. Specific gut feelings in this framework are what happens when such subconscious 'thoughts' reach a sufficiently high level of salience and just breach conscious awareness. The arts are intuitive thoughts expressed in a symbolic way (to ourselves, or an audience), thus not fully rationalized and explained in language, but made tangible nonetheless. These symbolic artefacts may be material, but need not be, e.g., as with music or plays.

The way in which these intuitive thoughts or feelings are expressed artistically is through simplifications, formalizations, repetitions, exaggerations and elaborations of ordinary materials, thus elevating their status to extraordinary (Dissanayake, 2009), and imbuing the symbols with personal and social significance (Alcorta, 2013). The symbols are created in a way that attracts attention, sustains interest, and creates, shapes, and activates emotion and intuition in their creator and/or audience (Dissanayake, 2009). This facilitates their mnemonic retention, social and cultural transmission, and therefore cultural selection (Atran & Norenzayan, 2004). The rewarding feelings of fulfilment of expectation within prediction (common for predictive processing across the board, and not specific to music) further promotes their endurance. Savage et al. appear to mix up the evolution of music (cultural) and musicality (biological) in this regard.

Symbols, by capturing many meanings – previously only existent in intuitive 'thought' – at once in an efficiently packaged, tangible, and memorable form (Alcorta, 2013), allow for better learning and

transmission of, and thinking about, ideas and feelings (Deacon, 1998). Therefore, symbolization has important personal *and* social benefits, and evolved through both, in a way similar to language, which also may be considered necessary for both thinking and communicating.

Cognitive play theories explain the personal benefits by the ability to mentally 'try out' scenarios and ideas (Boyd, 2009), including creatively recombined imaginations (van Mulukom, 2020). S&M pay too little attention to spontaneous creativity of cultural innovations, particularly in solo contexts or in contexts where no group identification is present or required, such as singing or playing an instrument at home. Such creative solo acts are widespread and important, and contribute to psychological well-being (MacDonald, 2013).

The symbols' facilitation of social transmission on the other hand allows for the regulation of social interactions (Carroll, 2012) and promotion of social cohesion. Social bonding is thus a highly important aspect of the symbolic system (including music), but not the only major one. In the case of music, it may be that the social benefit is emphasized over the personal one, as music is more abstract and intuitive, and less language-reliant, than the other arts (cf. Fitch, 2013), and importantly includes the facilitation of synchrony (e.g., through an external beat), which is well-known to increase endorphins and support social bonding (Lang et al., 2017; Launay, Tarr, & Dunbar, 2016).

Another aspect overseen by Savage et al. is the (evolutionary) initial use of music, despite comparing it to fire-making or dairy farming. I suggest that the initial utilitarian trigger of the arts may have been the symbolic representation of experiences (Zaidel, 2018), which could have aided in learning from the past and planning for the future (van Mulukom, 2020).

Moreover, the events of making and experiencing music can bring about extraordinary experiences, filled with awe, feelings of connectedness to something bigger, and other significant feelings. Such experiences are common in rituals (Charles et al., 2020a; 2020b), and can be induced by music, psychedelics (van Mulukom, Patterson, & van Elk, 2020), and other ritual behaviors. Their mechanisms and underlying effects are the same: The reduction of our 'rational voice' (i.e., executive or cognitive control, supported by the prefrontal cortex) and 'rational self' ("me" rather than "I" in William James' terminology; James, 1950, supported by the default mode network). These reductions allow our intuitive thinking to 'take over' and let "I" thrive (van Elk et al., 2019), in a process also called 'flow' (Csikszentmihalyi, 1990) and 'absorption' (Luhrmann, Nusbaum, & Thisted, 2010). As a result of being in this state, declarative memories are often reduced (van Mulukom, 2017). The events also induce surges of dopamine and endorphins (cf. Savage et al.), further boosting the significance, motivational force, and memorability of the resulting symbols.

The experience of rational ego dissolution in these events can lead to connectedness with others, but also with God, nature, or the universe, as well as values which the symbols represent. Such experiences can have transformative effects, contributing to one's identity and well-being (van Mulukom, 2017), as well as to social bondedness, especially when these experiences are shared with a small group (Tasuji et al., 2020). Therefore, such events may be used as a costly signal (cf. Mehr et al., 2020) or as a sign of fitness in sexual selection, but it was not evolved for it specifically – the symbols and their functions are themselves inherently valuable.

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