Trends in Ecology & Evolution

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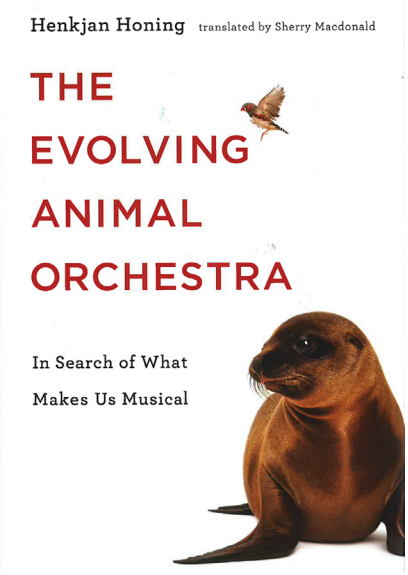
Book Review

Evolving Musicality

Andrea Ravignani[1,2,*,@] and Marco Gamba[3,*,@]



In biology, 'music' and 'evolution' rarely appear together. And for the layman, the 'evolution of music' means, for instance, the process by which the same country over time gave us first Bach then the Rammstein. However, once we move the focus from 'music' to 'musicality', we are ready to dive into one of the least explored topics in biology [1–3]. Musicality, as Honing explains, is a suite of neurobiological predispositions, which potentially enable auditory processing and motoric behaviors in several species. In humans, these traits happen to facilitate production and appreciation of an extremely common cultural artifact: music. But they can also be ecologically relevant for a large number of non-human species. None of these traits need to have been selected for music, however [1–3].

So, what can musicality do for the study of evolution, and vice versa? As Honing implicitly notices, the study of musicality starts with humans but has the power to formulate and test hypotheses on neurobiological traits that are potentially present in other species. Looking for musicality across species can unveil large-scale trends about auditory capacities, pattern-perception abilities, sexual dimorphism, aesthetics, etc. In other words, musicality becomes a framework to address the question: Why does a particular ethological trait exist?

The comparative approach, permeating the whole book, has two strengths: comparing species but also exchanging techniques across disciplines. Opening up a field toward others has to be actively spurred: this is what Honing is doing, in this book and in his scientific life. The comparative approach is used to reconstruct homologies/analogies across species and trace the evolutionary history of a neurobiological trait. At the same time, musicality provides top-down assumptions on what to look for in other species. This reasoning need not be circular, though: as for everything in science, progress on one side can function as a stepping stone for formulating a hypothesis on the other side.

This (unavoidable) subjectivism of science is partly mirrored in Honing's narration. Through the author's stories, the reader feels the awe of scientific discovery. Honing lingers a bit more on topics he is particularly fascinated by, but he is impartial in presenting alternative views [3], showing the whole debate rather than individual scientific positions. He paints a big picture of many passionate scientists contributing pieces to a mosaic, without claiming to have found the Holy Grail. The scientists in Honing's story know that no single field can provide the answer as to why humans have music, while many disciplines, together, might. So, the reader is left with a realization: 'I don't know the answer, but I do know what the debate is about'. As no good popular science book provides 'the answer', this is a win for Honing.

The book is perfect for any reader with interests in music psychology, human evolution, animal behavior, or neuroscience. Anthropologists, zoologists, anatomists, and ecologists with an interest in sound can surely appreciate Honing's effort. Students not trained in the field can understand and learn from the book. Scientists familiar with biomusicality may prefer more formal, though still engaging, treatments of these topics [1,4], but could enjoy a fast read of this book.

Studying the evolution of musicality is intriguing by itself, but it also has the potential to shed light on other fields: the evolution of communication, including human language. Several hypotheses on the origins of our musical and linguistic capacities are connected [5,6]. Some suggested that humans were, first of all, singing primates, and this behavior later bifurcated into, roughly, music and speech/language [4]. The fact that Honing spends only a little time on the music–language connection may be a (good) sign for biomusicology as a field: it has matured enough to distance itself from the traditionally 'more prestigious' study of the biology of language.

What's next, and needed, for this field? First, although it is tempting to use one's 'default model species' to answer a suite of questions, we should target the right species for the question at hand [3]. At the same time, there is a need to broaden the array of studied species so as to obtain stronger inferential power about evolutionary and selective forces [3,7]. Second, as the empirical side progresses [2], the field is also in dire need of agent-based simulations of evolutionary processes. Third, the field is sometimes prone to overinterpreting data when putting together pieces of the puzzle [2], but we are far from understanding why musicality exists. This means there are plenty of options to contribute to this field with comparative, genetic,

acoustic, behavioral, and clinical work to add pieces to this incomplete and fascinating puzzle [1–3].

The Evolving Animal Orchestra: In Search of What Makes Us Musical by Henkjan Honing, translated by Sherry MacDonald, The MIT Press, 2019. 9780262039321, price US$27.95/£22.00, hbk (160 pp.)

[1]Artificial Intelligence Lab, Vrije Universiteit Brussel, Pleinlaan 2, 1050 Brussels, Belgium
[2]Research Department, Sealcentre Pieterburen, Hoofdstraat 94a, 9968 AG Pieterburen, The Netherlands
[3]Life Sciences and Systems Biology, University of Turin, Via Accademia Albertina, 13, 10123 Turin, Italy

*Correspondence:
andrea.ravignani@gmail.com (A. Ravignani) and marco.gamba@unito.it (M. Gamba).
@Twitter: @AndreaRavignani (A. Ravignani) and @Marco_Gamba (M. Gamba).

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