

EvoMus: The evolution of music and language in a comparative perspective

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CALL FOR SUBMISSIONS

We welcome contributions (15-20 minutes including questions) describing original research on the evolutionary origins of music (see workshop description below for details). Experimental and empirical contributions are particularly encouraged.

Short abstracts (.doc files following the standard Evolang format) of max. 1 page (including references) should be sent to evomus.cogbio@univie.ac.at with “Evolang Workshop Submission” as subject. Confirmation of submission will be given.

Submission deadline: October, 23rd 2013 (23:59 CET)

Notification of acceptance: November, 17th 2013

WORKSHOP DESCRIPTION

Keywords

language-music interface; rhythm; pitch; cultural evolution; biological evolution; development; evolutionary musicology; biomusicology; comparative psychology; agent-based modeling; cognitive neuroscience.

Background

Language and music are some of the most prominent and unique features of human cognition. Similar formalisms are used to describe them, with musicology borrowing approaches, terminology and methodologies from linguistics (Lerdahl & Jackendoff, 1996). Both cognitive systems show combinatorial

structure and compositional features. Human brains treat "syntactic" violations in language and music in similar ways: overlapping networks are active when hearing ungrammatical sentences and chord progressions violating harmonic rules (Patel, 2003).

In parallel, researchers have been trying to understand the evolutionary function and mechanisms leading to language and music. As in evolutionary linguistics, numerous hypotheses attributing an adaptive value to the development of music have been proposed (a substitute for social grooming, a "training field" for social development, a filial bonding tool, a mechanism of sexual selection, etc.) (for a review, see Patel, 2008).

Music and language research seem to share interests in both evolutionary origins and cognitive underpinnings of their respective objects of inquiry. However, systematic musicology is currently following many of the methodological and conceptual steps which linguistics has been through decades ago. In general, research on music cognition could learn from the constructive theory-empirics interplay that has been taking place in linguistics. In particular, the relatively newborn field of evolutionary musicology could benefit from a debate with researchers who have been working on the evolution of language for decades. Similarly, research on the evolution of language can be defined and sharpened by comparison with another uniquely human cognitive feature, namely music: both systems are in fact products of cultural, biological and social evolution.

Aims and Questions

The purpose of this workshop is to (i) provide a common platform for researchers from a range of fields (syntax, phonology, typology, biomusicology, ethnomusicology, neuroscience, etc) to compare results and methodologies, (ii) discuss and integrate findings from different disciplines within the evolutionary and cognitive frameworks, (iii) develop critical hypotheses whose empirical testing can shed light on issues at the frontier between the evolution of language and music.

This workshop will hence compare recent findings on language and music along three lines of inquiry: evolutionary, cognitive and methodological.

1. *The evolutionary approach.* What is the relationship between the origins of language and music? Can findings in one discipline inform the other? Which experiments are crucial to reject or accept hypotheses of common origins? Are the common origin (a musilanguage split into language and music) and branching (music originated by scission from language or vice-versa) hypotheses tenable at all?
2. *The cognitive approach.* To what extent do language and music processing overlap in the brain and mind? How can experimental studies inform us about shared neural resources? In particular, do structural similarities in language and music map to shared processing mechanisms?
3. *The methodological approach.* Current research on language evolution makes, among others, broad use of agent-based modeling, iterated learning experiments and comparative research in non-human animals. How are similar techniques used to investigate the evolution of music? What kind of models and computer simulations could be “imported” from language to music research (and vice versa) successfully and meaningfully?

Agenda and Relevance to Evolutionary Linguistics

This workshop is extremely relevant to research on the evolution of language: evolutionary explanations, experimental findings and neuroscientific evidence overlapping between language and music can inform and sharpen current research in evolutionary linguistics.

Orthogonally to the 3 approaches mentioned below, the workshop will explore the following topics comparatively between language and music:

- ◆ *Structural formalisms:* how do classic and recent formalisms used to describe syntax, phonology and morphology relate to harmonic and rhythmic structure? (Lerdahl & Jackendoff, 1996; Patel, 2003)

- ◆ *Brain processing*: what are the neural resources shared between language and music processing? (Patel, 2008; Honing et al., 2012)
- ◆ *Rhythm and pitch in language and music*: are surface similarities between cognitive systems manifestation of deeper cognitive and evolutionary similarities? (Patel, 2008; Ritt & Baumann, 2012; Fitch, 2012)
- ◆ *Cultural evolution*: what is the role of culture in the evolution of musical structure and how does it relate to language? (Verhoef, 2012; Miranda et al., 2003)
- ◆ *Agent-based models*: which modeling approaches used in evolutionary linguistics are more appropriate to explain the evolution of musical features and capabilities? (Kirby, 2001; Miranda et al., 2003; Honing, 2006; Ritt & Baumann, 2012)
- ◆ *Animal and infant experiments*: what can cognitive experiments tell us about universals in music? How are music and language universals related? (Winkler et al, 2009; Honing et al., 2012; Fitch, 2006; Patel, 2009)

Contributors

- ◆ Prof. Aniruddh Patel, Department of Psychology, Tufts University (confirmed)
- ◆ Prof. Henkjan Honing, Music Cognition Group, University of Amsterdam (confirmed)
- ◆ Prof. Tecumseh Fitch, Department of Cognitive Biology, University of Vienna (confirmed)
- ◆ Tessa Verhoef, Center for Language and Communication, University of Amsterdam (confirmed)
- ◆ Andreas Baumann, Department of English, University of Vienna (confirmed)

Tentative Schedule

- ◆ 5 min introduction by A.Ravignani and B.Gingras
- ◆ 40 min keynote address by Prof. Aniruddh Patel
- ◆ 3 short talks (20 min each)
- ◆ 40 min keynote address by Prof. Tecumseh Fitch
- ◆ coffee break (20 min)

- ◆ 40 min keynote address by Prof. Henkjan Honing
- ◆ 3 short talks (20 min each)
- ◆ 20 min round table discussion (chaired by B.Gingras) *How can evolutionary linguistics and evolutionary musicology inform each other?* Discussants: Tecumseh Fitch, Henkjan Honing, Aniruddh Patel.

Audience Size and Technical Needs

We expect this workshop to be attended by conference participants doing human experimental work, animal cognition research, agent-based modeling, phoneticians, phonologists, syntacticians, linguistic typologists, biological and cultural anthropologists, etc.

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