

Talk**Syntax in music and language: Towards an action-oriented approach**

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Recent theoretical and empirical findings in comparative research on syntax of music and language indicate that both cognitive systems share some neurocognitive computations, but differ in their representations. However, it is still unclear how domain-general computations operate upon domain-specific representations. The goal of the current paper is to specify this process from a theoretical and neuroscientific perspective and to clarify similarities and differences between music and language. Original contributions of the current paper for music-language comparative research are twofold. First, through an extensive review of theoretical considerations as well as behavioral, neuroscientific, and neuropsychological studies, I show that the very similarity of music and language syntax lies in the fact that domain-specific hierarchical structures are projected onto temporal linearly ordered structures (temporal integration). Moreover, I demonstrate that this projection in the temporal integration process is rooted in action cognition. Secondly, I introduce an action-oriented framework exploring the syntax of language and music in terms of goal of action, action planning, motor control, and sensory-motor integration. I discuss how the neurocognitive systems music and language build on the basis of domain-general, action-based neural structures, particularly the basal ganglia, the (motor) cortico-basal ganglia-thalamo-cortical circuit, and the dorsal stream including Broca's area. In this framework, the way domain-general neurocognitive computations for temporal integration operate on domain-specific representations can be investigated in relation to domain-general motor planning flexibly adapting to domain-specific goals. The results of the current paper provide important implications for Comparative Biomusicology, investigating biological foundations of cognitive systems in light of mechanisms, ontogeny, phylogeny, and adaptive significance.