

“Music and Language: evidence from neuroimaging”

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Like language, music is a universal feature of human culture, and it forms an integral part of the lives of people in all known cultures around the world.

Up until the recent years, many neuroscientists have held the traditional view that music and language are entirely separate from each other, and that at most, language gave rise to music as societies developed. However, some new theories are now rising that support the contrary view — that music in fact develops with language and can even help language development.

Our neural responses to language and music are largely innate and we are biologically programmed to process their features and have intense reactions to their sounds. Music shares with language crucial neural components. Language phoneme and music pitch processing are related, music syntax and language syntax share consistent neural systems, speech contains non-linguistic components that are quite similar to music – rhythmic and melodic elements known as ‘prosody’ – which are also crucial to communicating meaning. However, hierarchical structures may well be part of the cognitive apparatus by which humans parse the world, and can exist in the absence of any means to communicate them. It is possible that the evolution of such cognitive “hierarchies” allowed the emerging of music capacity and language.

I will present some neuroimaging evidence on shared neural substrates for language and music from infancy and adult individuals, on the integrated audio-motor aspects, and on the role of the multifacet supramodal processing of Broca’s area.