

Computational music analysis of children's keyboard improvisations

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Improvisation is a common form of musical practice in all cultures and ages. When populations with no musical background such as young children engage in musical improvisation, the analysis of the musical aspects can become particularly challenging: The possible lack of common learned musical schemata and related technical skills requires the introduction of representations and methods of analysis which can deal with the characteristics of this musical style. This paper argues that computational methods of music analysis seem to be particularly suitable for such types of music. We propose a pattern discovery method for analysing improvisations which is based on the principles of paradigmatic analysis, where repetition, variation and transformation are brought forward. Due to the nature of the music, very abstract representations need to be used. The method is applied to the improvisations of a group of four and eight year old children. For their improvisations they use the machine-learning based system MIROR-IMPRO, developed within the FP7 European Project MIROR (www.mirrorproject.eu), which can respond interactively, by using and rephrasing the user's own material. The results point towards the usefulness of more abstract types of representations and bring forward several general common features across the children's improvisations, which can be related to gestures. The paper concludes with a discussion on the suitability of computational methods of music analysis for such types of music where traditional analytical criteria might not be as effective.