

A Network-Theoretical Perspective on Music Analysis

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Abstract : The present paper describes a framework for constructing mathematical networks encoding relevant musical information from a music score for structural analysis. These graphs englobe statistical information about music elements such as notes, chords, rhythms, intervals, etc., and the relations among them, and so become helpful in visualizing and understanding important stylistic features of a music fragment. In order to build such networks, musical data is parsed out of a digital symbolic music file. This data undergoes different analytical procedures from Graph Theory, such as measuring the centrality of nodes, community detection, and entropy calculation. The resulting networks reflect important structural characteristics of the fragment in question: predominant elements, connectivity between them, and complexity of the information contained in it. Music pieces in different styles are analyzed, and the results are contrasted with the traditional analysis outcome in order to show the consistency and potential utility of this method for music analysis.

Keywords : computational musicology, mathematical music modelling, music analysis, style classification

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