

Popoff, Alexandre; Andreatta, Moreno; Ehresmann, Andrée

Groupoids and wreath products of musical transformations: a categorical approach from poly-Klumpenhouwer networks. (English) [Zbl 1456.00095](#)

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Summary: Klumpenhouwer networks (K-nets) and their recent categorical generalization, poly-Klumpenhouwer networks (PK-nets), are network structures allowing both the analysis of musical objects through the study of the transformations between their constituents, and the comparison of these objects between them. In this work, we propose a groupoid-based approach to transformational music theory, in which transformations of PK-nets are considered rather than ordinary sets of musical objects. We show how groupoids of musical transformations can be constructed, and provide an application of their use in post-tonal music analysis with Berg's Four pieces for clarinet and piano, Op. 5/2. In a second part, we show how these groupoids are linked to wreath products through the notion of groupoid bisections.

For the entire collection see [\[Zbl 1425.00082\]](#).

MSC:

[00A65](#) Mathematics and music

[20L05](#) Groupoids (i.e. small categories in which all morphisms are isomorphisms)

Cited in 1 Document

Keywords:

[Klumpenhouwer network](#); [transformational music theory](#); [category theory](#); [groupoid](#); [wreath product](#)

Software:

[ImageAI](#); [Opycleid](#)

Full Text: [DOI](#) [arXiv](#) [HAL](#)

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