

# Transitions of Tonality. Perspectives on the Historical Changes of Tonal Pitch Relations from Computational Musicology, Music Theory, and the Digital Humanities

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Freitag, 29. November 2019, 10:00 Uhr - 12:00 Uhr

**Alter Seminarraum, Musikwissenschaftliches Institut, Hauptgebäude der Universität zu Köln**

Tonality has been the cornerstone of Western music-theoretical discourse for centuries. This study addresses the subject, using traditional music analysis, data-driven corpus methods, and computational models, concentrating on historical changes of tonality with a particular focus on the 19th century.

The thesis engages three analytical levels of increasing scope - micro, meso, and macro - and is thus located between the poles of the particular and the general. The micro-level illustrates compositional innovations testifying to the radical changes in tonality within the 19th century. The meso-level examines a corpus of harmonic annotations of pieces by Beethoven, Schubert, Chopin, Liszt, Dvořák, Grieg, Tchaikovsky, Debussy, and Medtner, containing over 75,000 chord symbols. It presents a comprehensive model for the analysis of chord symbols in large corpora in order to study chords and the progressions between them. The macro-level explores a corpus of nearly 3 million notes in more than 2000 pieces created by 75 composers, comprising a historical range of approximately 600 years. The encoding of the data distinguishes enharmonically equivalent notes, hence providing a larger note vocabulary than most previous approaches in empirical music research.

The diverse methodology in this study provides quantitatively grounded insights from a range of perspectives, bridging the fields of music theory, computational musicology, mathematical modeling, and the digital humanities.

**Keywords:** Tonality, Corpus Studies, Computational Musicology, Music Theory, Digital Humanities

**Bio:** Fabian C. Moss is a PhD student of Martin Rohrmeier in the **Digital and Cognitive Musicology Lab**(DCML) at École Polytechnique Fédérale de Lausanne (EPFL, Switzerland). He was born in Cologne, Germany, and studied Mathematics and Educational Studies at University of Cologne, and Music Education (Major Piano) and Musicology at Hochschule für Musik und Tanz, Köln. Working with large symbolic datasets of musical scores and harmonic annotations, he is primarily interested in Computational Music Analysis, Music Theory, Music Cognition, and their mutual relationship.

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