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Perceptual versus historical origins of musical materials

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Date of submission to CIMxx: day month year

Desired mode of presentation: talk

Background in music history

The historical development of tonal-harmonic syntax was influenced by concurrent developments in the history of ideas (Eberlein, 1994). For example, medieval counterpoint treatises were influenced by concurrent social, religious and political developments. And when in 1424 the Council of Basel recommended stricter compliance with religious laws, composers responded by more carefully avoiding parallels and dissonances.

Background in music psychology

The melodic coherence of a progression of tones or sonorities depends on pitch/time intervals between successive tones (Bregman, 1990). The perceived consonance of a tonal sonority depends on its roughness and fusion (Terhardt, 1974). Theories of pitch and melody perception (gestalt, auditory scene analysis) may therefore contribute to an explanation of the historical development of tonal-harmonic syntax (Parncutt, 1996).

Aims

We aim to clarify the origins of European tonal-harmonic syntax, including the gradual consolidation of the major-minor system in the 15th-17th centuries, by comparing and evaluating perceptual and historical theories of the origins of specific syntactic elements.

Main contribution

Music perception and cognition involves the generation of expectancies in the form of pitch-time patterns. These depend on the prevalence (frequency of occurrence) of specific patterns and continuations in the music to which a person has been exposed. It should therefore be possible to reconstruct the musical expectancies of listeners from a specific historical period by statistical analysis of a large databank of representative music of that period. This approach assumes musical learning by neural networks and is consistent with the stylistic diversity of music across cultures and periods.

Why did particular musical styles develop in particular ways at particular times? Some developments are best explained by pedagogical and compositional traditions – e.g., the emergence of the double leading-tone cadence, a result of the application of rules of two-part counterpoint to textures of three or four voices (Eberlein, 1994). Other developments are best accounted for by perceptual theories – e.g., the subsequent gradual replacement of double-leading-tone cadences by falling-fifth cadences (Parncutt, 1996).

Implications

Music theory pedagogy could benefit from an influx of both approaches presented in this article: information about the statistical prevalence of specific pitch-time patterns in different musical styles and about relevant perceptual theories. Music theory courses could benefit from the development of user-friendly software for analysis of databases, evaluation of perceptual models, and generation of sound examples. Computer-based compositional tools could be developed to allow composers to take advantage of this knowledge. A comprehensive account of the historical development of tonal-harmonic syntax requires expertise from both the humanities (music history, theory, analysis, history of theory) and the sciences (psychology, statistics, computer science). The technical developments of recent decades have made such research feasible, but more research is needed if musicology is to reap the benefits.

References

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- Terhardt, E. (1974). Pitch, consonance, and harmony. *Journal of the Acoustical Society of America*, 55, 1061-1069.

Biographies

Name	Richard Parncutt
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