

Supplementing Melody, Lyrics, and Acoustic Information to the McGill Billboard Database

Hubert Léveillé Gauvin

leveillegauvin.1@osu.edu

Ohio State University, United States of America

Nathaniel Condit-Schultz

natsguitar@gmail.com

McGill University, Canada

Claire Arthur

claire.arthur81@gmail.com

McGill University, Canada

Research Subject and Issues

Musical organization in popular music is a complex research subject. While significant work has been done in the last few decades to theorize popular music (e.g. Moore, 1992, 1995; Tagg, 2009; Biamonte, 2010; Attas, 2011), these theories tend to rely primarily on score-based parameters such as harmony and, to a lesser extent, melody and rhythm. However, in popular music, scholars have observed that audio-based features such as perceived loudness and timbre play an important role in musical organization (e.g., Everett, 2001; Temperley, 2007). To empirically evaluate the relevance of these features to various theories, it would be appropriate to supplement the traditional melodic and syntactic approaches with acoustical approaches. Empirically oriented musicological surveys of popular music have become more and more popular. However, as is the case with more traditional musicological research, studies on harmony still occupy the core of the research that has been published in the last decade (e.g. Mauch et al., 2007; de Clercq and Temperley, 2011, Temperley and de Clercq, 2013; Burgoyne et al., 2011; Léveillé Gauvin, 2015). This underrepresentation of large-scale research focusing on other parameters such as pitch content and perceived loudness in popular music may in part be attributed to the lack of corpora with such data.

Objectives

The aim of the current project is to gain unique insights into popular music by assembling a new database that will combine score-based and audio-based parameters. As such, we are releasing melodic and lyric transcriptions, as well select signal-processing data to supplement a subset of 100 songs from the already publicly available McGill Billboard Database (Burgoyne et al., 2011).

Sample

The McGill Billboard Database is a systematically sampled, professionally curated collection of harmonic transcriptions for more than 700 distinct songs that made the Billboard Hot 100 weekly charts between 1958 and 1991. Along with time-aligned chord transcriptions, each file features metadata regarding the title of the song, the performing artist, the chart date, the highest rank the song ever achieved on the Billboard Hot 100 chart, and the number of weeks the song spent on the charts. Our corpus focuses on a 100-song collection taken from the original McGill Billboard Database. More than 70 unique artists are represented, ranging from 1958 to 1991.

Transcription Process

All songs were divided and assigned randomly among a group transcribers, including the authors. Each transcriber was in charge of finding the appropriate recording matching the original chord transcription from the McGill Billboard Database and transcribing melodic and lyrical information using their preferred notational software. In order to alleviate discrepancies among the different transcribers, a set of guidelines in the form of a "Transcription Style Guide" was established and distributed prior to the transcribing process. This file stipulated minimum requirements for every transcription, as well as general instructions on how to notate potentially more challenging pitch nuances, such as slides, scoops, and ornaments.

We used the timestamps already available in the original McGill Billboard Database to automatically retrieve acoustical information. The data was encoded separately for the left and right channels, thus maintaining information related to stereo panning.

Encoding Format

We opted to encode the new transcriptions in the Humdrum format. Humdrum (Huron, 1995) is both a

syntax to encode music information in ASCII representation and a set of tools dedicated to the manipulation of such files, alleviating the problem of having to write a dedicated parser. Figure 1 represents a typical Humdrum file in our corpus.

Figure 1: Example of a complete transcription in the Humdrum format

Impact and Future Work

We hope that this new collection of musically-rich data will yield new and unexpected research on popular music, and allow possibilities that were, up until now, virtually impossible. We believe that supplementing traditional score-based data (e.g. harmony and melody) with lyrics and loudness descriptors is a necessary step into developing a holistic theory of form in popular music.

Our plans for the future are manifold. We hope to increase the size of our corpus, with the goal to eventually provide complete annotations for every harmonic transcription in the McGill Billboard Database. We also wish to continue supplementing this corpus over the next several years with more detailed data. More specifically, we hope to have instrumental solos, drumming patterns, back vocals, and more acoustical information, including spectral annotations.

Acknowledgment

This research project was supported by the Fonds de recherche du Québec - Société et culture. Special thanks go to Dana DeVlieger, Lissa Reed and Gary Yim for their help.

Bibliography

- Attas, R.** (2011). "Sarah setting the terms: Defining phrase in popular music." *Music Theory Online*, 17(3).

Biamonte, N. (2010). "Triadic modal and pentatonic patterns in rock music." *Music Theory Spectrum*, 32(2): 95–110.

Burgoyne, J. A., Wild, J., and Fujinaga, I. (2011). "An expert ground-truth set for audio chord recognition and music analysis." *Proceedings of the 12th International Conference on Music Information Retrieval*. Mimi, FL, pp. 633–638.

De Clercq, T., and Temperley, D. (2011). "A corpus analysis of rock harmony." *Popular Music*, 30(1): 47–70.

Everett, W. (2001). *The Beatles as Musicians: The Quarry Men through Rubber Soul*. Oxford University Press.

Huron, D. (1995). *The Humdrum toolkit: Reference manual*. Menlo Park, CA: Center for Computer Assisted Research in the Humanities.

Léveillé Gauvin, H. (2015). "'The Times They Were A-Changin': A database-driven approach to the evolution of harmonic syntax in popular music from the 1960s." *Empirical Musicology Review*, 10(3): 215–238.

Mauch, M., Dixon, S., and Harte, C. (2007). "Discovering chord idioms through Beatles and Real Book songs." *Proceedings of the 8th International Conference on Music Information Retrieval*. Vienna, Austria, pp. 255–258.

Moore, A. (1992). "Patterns of harmony." *Popular Music*, 11(1): 73–106.

Moore, A. (1995). "The so-called 'flattened seventh' in rock." *Popular Music*, 14(2): 185–201.

Tagg, P. (2009). *Everyday Tonality: Towards a Tonal Theory of What Most People Hear*. New York and Montreal: Mass Media Scholar's Press.

Temperley, D. (2007). "The melodic-harmonic 'Divorce' in rock." *Popular Music*, 26(2): 323–342.

Temperley, D., and De Clercq, T. (2013). "Statistical analysis of harmony and melody in rock music." *Journal of New Music Research*, 2(3), 187–204.