Scales, Chords, and Cadences: Practical Music Theory for MIR Researchers

Wrap Up

Main Takeaways: Scales

- **Approach**
  - **Template-matching has hit a ceiling (Albrecht & Shanahan, 2013), and restricts itself to 12-TET generally, and the major/minor modes, specifically.**
- **Representation**
  - **Structural accounts (i.e., 0th-order distributions) dominate the field, but richer representations may improve performance.**
- **Models**
  - **Key-finding models often treat tonal relatedness as a spatial (i.e., geometric) metaphor, but the relationships between the degrees of a scale are often asymmetric.**
  - **A piece of music may feature two or more scale systems simultaneously (modal mixture, mixed scale systems, supermode, etc.), but researchers rarely employ fuzzy classifiers.**

Main Takeaways: Chords

- **Chord Labels**
  - **Different types of chord labels (roman numerals, pop chord labels, tablature) contain different types of information with respect to key and chord root**
  - **Chord labels represent which notes or chroma are chord tones versus non-chord tones**
- **Higher-Level Organization of Harmonic Material**
  - **Chords do not occur in isolation**
- **Evaluation for Automatic Chord Recognition**
  - **Chord labels are not independent of one another**

Main Takeaways: Cadences

- **Cadences are patterns that frequently occur within larger patterns (schemata)**
- **A cadence is comprised of a combination of melodic and harmonic features**
- **Patterns tend to be around 4-8 measures**
- **Analysts sometimes disagree on the type of cadence, or even whether something is a cadence**
  - Some focus on cadences in terms of their constituent features and others in terms of whether they evoke an expectation of an ending
  - Even though there is disagreement, examining cadences computationally still allows us to better understand the broader questions of expectation, style, pattern recognition, and form

Main Takeaways: Concluding Thoughts

- **Music theories are a formalization of how people understand music**
  - Particularly for musical traditions where theories are used pedagogically
- **Music theories can be a cumbersome and potentially over-formalized**
  - Particularly when they stray too far from music perception
  - But they do encode common musical practice in a systematic way and thus can offer tools with which to build and refine computational models
- **Music theories are all flawed in their own ways**
  - But they may be useful

Github Repo

https://github.com/jcdevaney/ISMIR-musicTheoryTutorial

Zotero Bibliography

https://www.zotero.org/groups/4502273/ismir-musictheorytutorial