Introduction to Musical Corpus Studies

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Musikwissenschaftliches Seminar // Universität zu Köln // WS 2020/21

Universität zu Köln

Today

Introduction (16:00–17:20)

I. What are Musical Corpus Studies?
II. Issues
III. Examples
IV. Organization of the course
V. Questions

— *Break* —

Melody I (17:40–19:00)

I. What are Musical Corpus Studies

II. Issues

III. Examples

Example

Example of our most recent research:

- Harasim, D., Moss, F. C., Ramirez, M., & Rohrmeier, M. (in press). Exploring the foundations of tonality: Statistical cognitive modeling of modes in the history of Western classical music. *Humanities & Social Sciences Communications*

Research questions

1. How can we find modes automatically?
2. How can the concept of a mode be operationalized?
3. Can we do it without knowing (unsupervised) how many modes there are and what they look like?
4. How do modes change historically?

Corpus

- 21'000 pieces from https://classicalarchives.com
- MIDI format
- user-generated (quality?)
- biases
- metadata: composer names, keys, composition date, …
- representativeness?
- almost no early music examples $\longrightarrow$ add from other projects
  1. *Citations: The Renaissance Imitation Mass Project* (CRIM)
  2. *The Lost Voices Project*

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$\Longrightarrow$ in total 13'402 pieces (ca. 55 million notes) with given composition year (but not key)

Corpus

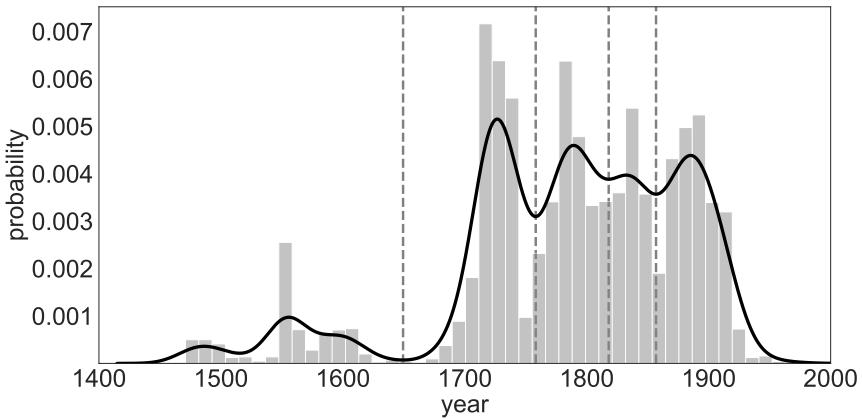

Figure 1: Historical distribution of pieces in the corpus.

Assumptions

1. pieces can be represented by pitch-class counts
2. enharmonic equivalence
3. transpositional invariance

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$\Longrightarrow$ explitic modeling

An example

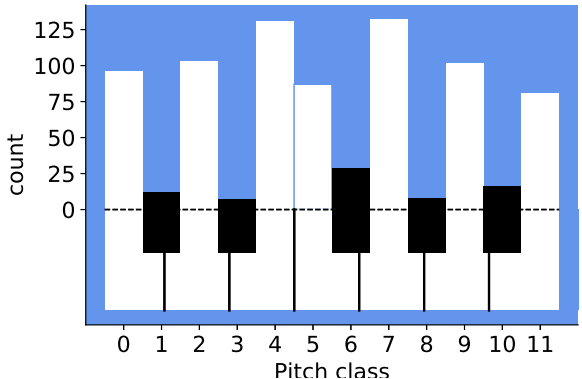


Figure 2: Pitch-class counts of an example piece in C major.

The model

Automatically finding modes

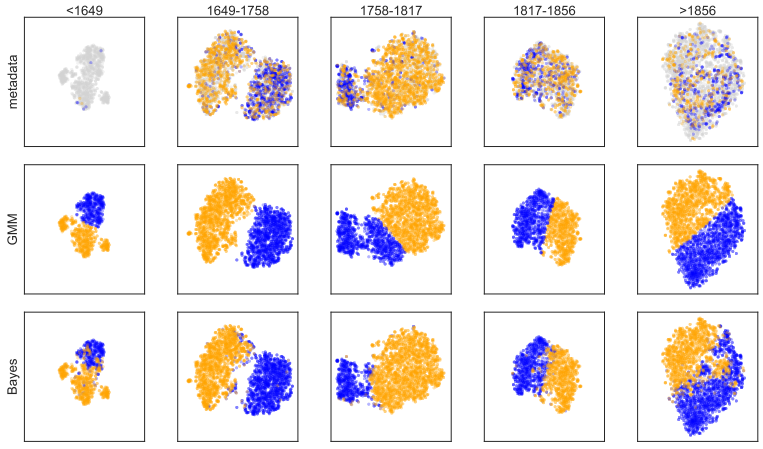


Figure 3: Three models for automatic mode finding.

Quality of the model

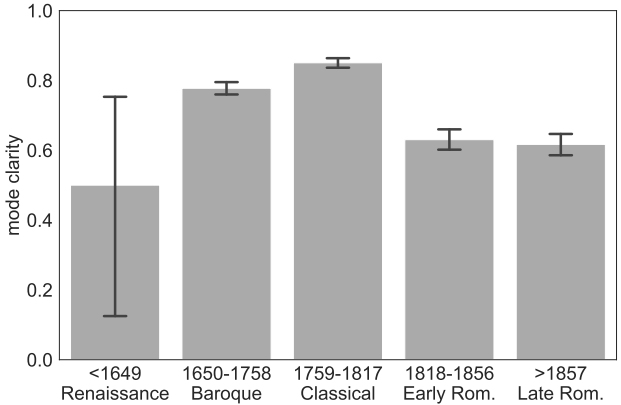


Figure 4: Accuracy scores of our model in five historical periods.

The major and minor modes

Pitch-class distributions of all pieces in the Baroque and Classical periods:

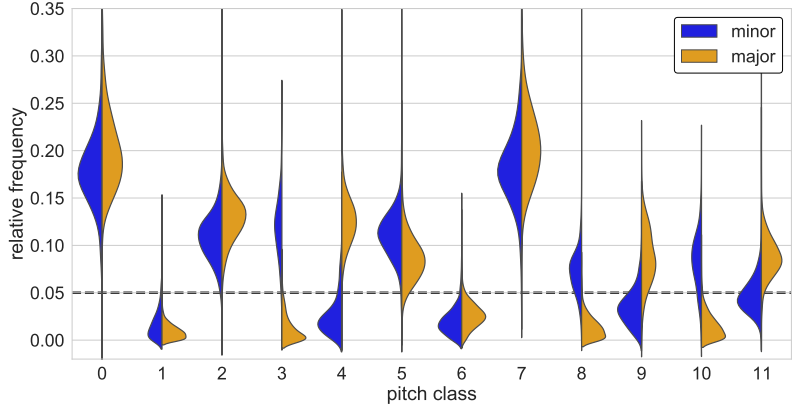


Figure 5: Pitch-class distribution of the major and minor modes.

Modes in the Renaissance

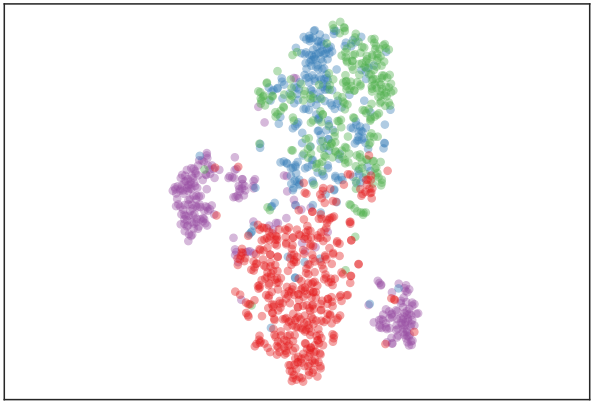


Figure 6: Clustering into four modes in the Renaissance.

Modes in the Renaissance

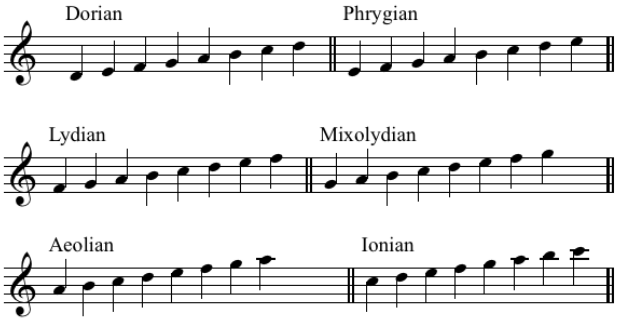
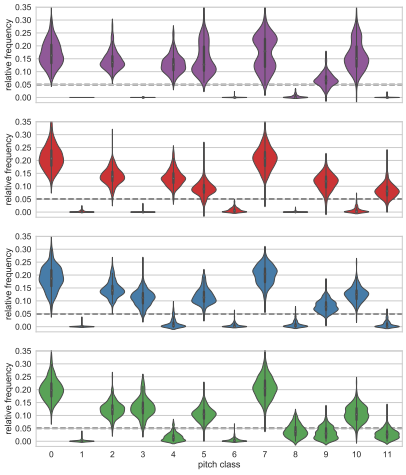


Figure 7: Six modes in early music.

Modes in the Renaissance



Four modes emerge in the Renaissance

- Mixolydian (violet)
- Ionian (red)
- Dorian (blue)
- Aeolian/Dorian (green)

Figure 8: Pitch-class distribution of Renaissance modes.

Summary

1. ...

IV. Course organization

Resources

- main organization via ILIAS
- literature
- forum
- Zoom link (you are all here)
- external website: https://fabianmoss.github.io/intro-corpusmus
  - general info
  - course materials (updated after each session)
- HfMT students: by your group members

Credit Points

- 3 CPs = 90 SWS
  - 24 SWS presence in seminar
  - 24 SWS preparation of and follow-up on course materials
  - 42 SWS reading of literature and writing of report

Group work

- you will meet with your group in the breakout rooms
- discussions
- exercises
- Let's test the breakout rooms! (10 min for contact info exchange)

Report

- report due on **31 January 2021, 23:59h**
- 6–8 pages
- suggested structure
  1. Introduction
  2. Discussion
  3. Issues
  4. Various
  5. Contributions

Questions?

References

Harasim, D., Moss, F. C., Ramirez, M., & Rohrmeier, M. (in press). Exploring the foundations of tonality: Statistical cognitive modeling of modes in the history of Western classical music. *Humanities & Social Sciences Communications*.